This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Minor, Municipal** permit. The discharge results from the operation of a 0.10 MGD wastewater treatment plant with planned design flow increases to 0.311mgd and 0.70 mgd. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

1. **Facility Name and Mailing Address:** Zion Crossroads WWTP, P.O. Box 9, Louisa, VA 23093 — SIC Code : 4952

   Facility Location: 9746 James Madison Highway, Gordonsville, VA 22942 — County: Louisa

   Facility Contact Name: David Jones, Chief Operator — Telephone Number: 540-967-0696

2. **Permit No.:** VA0090743 — Expiration Date of previous permit: March 28, 2007

   Other VPDES Permits associated with this facility: None

   Other Permits associated with this facility: None

   E2/E3/E4 Status: NA

3. **Owner Name:** Louisa County Water Authority

   Owner Contact/Title: Bar Delk — Telephone Number: 540-967-1122

4. **Application Complete Date:** August 8, 2007

   Permit Drafted By: Anna Westernik — Date Drafted: June 22, 2007

   Draft Permit Reviewed By: Alison Thompson — Date Reviewed: May 1, 2008

   Public Comment Period : Start Date: June 27, 2008 — End Date: July 28, 2008

   Start Date: September 19, 2008 — End Date: November 6, 2008

5. **Receiving Waters Information:**

Receiving Stream Name :	Impoundment of Camp Creek		
Drainage Area at Outfall:	3.71 sq.mi.	River Mile:	3.17
Stream Basin:	York River	Subbasin:	None
Section:	3C	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-F01R
7Q10 Low Flow:	Not Determinable	7Q10 High Flow:	Not Determinable
1Q10 Low Flow:	Not Determinable	1Q10 High Flow:	Not Determinable
Harmonic Mean Flow:	Not Determinable	30Q5 Flow:	Not Determinable
303(d) Listed:	No	30Q10 Flow:	Not Determinable
TMDL Approved:	Yes	Date TMDL Approved:	August 2006

6. **Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:**

   ✓ State Water Control Law
   ✓ Clean Water Act
   ✓ VPDES Permit Regulation
   ✓ EPA NPDES Regulation
   ✓ EPA Guidelines
   ✓ Water Quality Standards
   ___ Other *(PES, Occoquan Policy, Dulles)*

7. **Licensed Operator Requirements**: Class I

8. Reliability Class: Class I

9. Permit Characterization:

	Private	✓	Effluent Limited		Possible Interstate Effect
	Federal	✓	Water Quality Limited	✓	Compliance Schedule Required
	State		Toxics Monitoring Program Required	✓	Interim Limits in Permit
✓	POTW	✓	Pretreatment Program Required		Interim Limits in Other Document
✓	TMDL				

10. Wastewater Sources and Treatment Description:

The Zion Crossroads STP currently serves 113 single-family homes in the Spring Creek Subdivision (population of 283) and several commercial connections. Effluent from the Zion Crossroads WWTP is discharged to an impoundment of Camp Creek. From there it flows to Camp Creek, Wheeler Creek, Hudson Creek, and subsequently the South Anna River. Downstream from the impoundment, Camp Creek flows through the Green Springs National Historic Landmark District. Virginia Water Protection (VWP) individual permit No. 02-0753 was issued on July 1, 2003, to authorize the surface water impacts associated with the construction of the Spring Creek multi-use golf community and water withdrawal from the impoundment of Camp Creek.

0.10 mgd Plant

Influent from the Spring Creek Subdivision flows via gravity where it is pumped with the influent from the commercial connections. Sewage from the pump station travels through a primary treatment unit consisting of two barscreens (one automatic and one manual that is used as a bypass). After screening, wastewater flows to one of the two sequencing batch reactor (SBR) units. A flow splitter is present to divert flow to either SBR. However, only one is used at this time. Within the SBR unit, wastewater is mixed with sludge and aerated, settled, and decanted for a given cycle of time. Effluent leaving the SBR unit flows to an equalization tank where it is reaerated. Effluent flows from the SBR unit through a Parshall Flume where it is metered and is then disinfected with ultraviolet radiation (UV) before being discharged to an impoundment of Camp Creek.

0.311 mgd Plant

The proposed design for the Zion Crossroads WWTP at the 0.311 mgd flow tier will involve converting the existing SBR basins into aerobic digesters and installing an oxidation ditch/carrousel and secondary clarifiers for biological treatment.

Influent will be pumped from the Spring Creek Subdivision and the commercial connections to a preliminary treatment unit consisting of manual and mechanical bar screens and a grit chamber. Influent flow will be measured after preliminary treatment. Secondary treatment will consist of an oxidation ditch and two secondary clarifiers. Returned activated sludge will be sent to an aerobic digester that was originally the sequencing batch reactor for the 0.10-MGD plant. UV disinfection and step aeration will be provided before the effluent is discharged to the impoundment. Effluent is to be metered after the UV basin.

Since treatment is being changed from a SBR to an oxidation ditch, the following treatment processes will be needed: a grit chamber, an oxidation ditch, secondary clarifiers, chemical feed facilities, a return activated sludge pumping station, a sludge dewatering building, tertiary filtration, additional UV banks, and cascade aeration.

Implementing the water reuse system will involve the following: installing an effluent pumping station to distribute reclaimed water, construction of transmission lines (to irrigation fields and/or back to the head of the plant), installation of monitoring equipment, and construction of a storage basin.

0.70 mgd Plant
The following changes would need to be incorporated into the 0.7 mgd facility to treat the additional flow and meet SOA nutrient limits: new influent pumps, an influent flow equalization basin; more chemical feed facilities (supplemental carbon source and increased storage capacity), and extra UV banks would need to be added.

See **Attachment 1** for a facility schematic/diagram.
See **Attachment 2** for an aerial photograph of the impoundment.

TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic and/or Commercial Wastewater	See Item 10 above.	0.10 MGD	**38° 00' 05.1"** N **78° 11' 49.8"** W
See **Attachment 3** (Boswells Tavern Topographic Map – 172C).				

11. Sludge Treatment and Disposal Methods:
Wasted sludge is sent to an aerobic digester on site for stabilization. The stabilized sludge is transported to the Louisa County Regional WWTP for further treatment and dewatering. Disposal is in accordance with the sludge management plan for the Louisa County Regional WWTP (VA0067954).

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2

River Mile	Type	Latitude/Longitude	Description
0.23 (South Anna River, UT)	0.667 MGD Municipal Discharge	38° 7' 30", 78° 11' 59"	Outfall 001 Gordonsville STP (VA0021105)
100.53 (South Anna River)	0.047 MGD Industrial Discharge	38° 7' 24", 78° 12' 19"	Outfall 001 Gordonsville Power Plant (VA0087033)
97.82 (South Anna River)	Monitoring Station	38° 5' 31", 78° 11' 24"	Rt. 603 (sampled quarterly)
Impoundment on Camp Creek	0.10 MGD Municipal Discharge	38° 0' 5.1", 78° 11' 49.8"	Outfall 001 Zion Crossroads WWTP (VA0090743)
Impoundment of Camp Creek	Withdraw permit	38° 0' 42", 78° 9' 18"	VWP Individual permit No. 02-0753 (Authorizing Withdraw from Camp Creek)
70.96 (South Anna River)	Monitoring Station	37° 56' 20", 77° 58' 58"	Rt. 646 (sampled quarterly)
0.54 (Lickinghole Creek)	0.1 MGD Municipal Discharge	38° 4' 32", 78° 8' 57"	Outfall 001 Shenandoah Crossing (VA0076678)
3.1 (Central Branch, UT)	0.0395 MGD Municipal Discharge	37° 58' 22", 78° 12' 40"	Outfall 001 Virginia Oil - Zion Crossroads STP (VA0088706)

VPDES Industrial Storm Water General Permits

VPDES Number	Facility Name
VAR050848	Discharge to an UT of the South Anna River- Knockner Pentaplast of America
VAR050969	Discharge to an UT of the South Anna River- Trus Joist Gordonsville
VAR051197	Discharge to an UT of the South Anna River – Hafner LLC
VAR051055	Discharge to Mountain Run - Intertrans Carrier Company
VAR051733	Discharge to an UT of Central Branch – Wal Mart Grocery Distribution Center #7016

13. **Material Storage:** This facility normally stores two 55-gallon drums of 50% alum solution on site in a chemical room without a drain.

14. **Site Inspection:** Performed by Anna Westernik and Doug Frasier on March 14, 2007 (see **Attachment 4**).

15. **Receiving Stream Water Quality and Water Quality Standards:**

a) Ambient Water Quality Data

The receiving stream is not monitored and is not listed in the current 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report (IR). However, the 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report (IR) states that there are numerous downstream assessment unit segments (located on Wheeler Creek and the South Anna River) that are impaired for a bacteria parameter (fecal coliform and/or *E. Coli*).

On August 6, 2006, a bacterial TMDL was prepared for the Pamunkey River Basin. This facility discharge is included in the TMDL. There is an *E. coli* WLA of 1.22 E 12 cfu/yr that was established by applying the geometric mean criteria at a facility design flow of 0.70 mgd.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment.

In response, the Virginia General Assembly amended the State Water Control Law in 2005 to include the *Chesapeake Bay Watershed Nutrient Credit Exchange Program.* This statute set forth total nitrogen and total phosphorus discharge restrictions within the bay watershed. Concurrently, the State Water Control Board adopted new water quality criteria for the Chesapeake Bay and its tidal tributaries. These actions necessitate the evaluation and the inclusion of nitrogen and phosphorus limits on discharges within the bay watershed.

b) Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, an impoundment of Camp Creek, is located within Section 3C of the York River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

Attachment 5 details other water quality criteria applicable to the receiving stream.

Ammonia. pH and temperature values derived from in-stream monitoring conducted upstream from Outfall 001 of the Zion Crossroads WWTP in 2005, 2006, and 2007 were used to establish the ammonia water quality standard. The 90th percentile pH and temperature values were 5.8 S.U. and 26 °C (see **Attachment 6).** See **Attachment 7** for the acute and chronic ammonia water quality criteria/wasteload allocation analysis.

Metals Criteria: The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate). Since the stream flow is considered to be zero during critical stream flow conditions, effluent hardness will be used to determine the metals criteria (see **Attachment 8**). Staff used effluent hardness data collected during February, March, August and September 2007 to calculate an average hardness of 190 mg/L. The hardness-dependent metals criteria calculated using this hardness value is shown in **Attachment 7.**

Bacteria Criteria: The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

E. coli and enterococci bacteria per 100 ml of water shall not exceed the following:

	Geometric Mean[1]	Single Sample Maximum
Freshwater *E. coli* (N/100 ml)	126	235
Saltwater[and Transition Zone[2]] enterococci	35	

[1]For two or more samples [taken during any calendar month].
[2]See 9 VAC 25-260-140 C for fresh[water] and transition zone delineation

The Zion Crossroads WWTP discharges into a freshwater area.

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380 designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, an impoundment of Camp Creek, is located within Section 3C of the York River Basin. This section has not been designated with any special standards.

d) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched for records to determine if there are threatened or endangered species in the vicinity of the discharge The following threatened or endangered species were identified within a 2 mile radius of the discharge: bald eagle, upland sandpiper, migrant loggerhead shrike, and shrike loggerhead. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge.

16. Antidegradation (9 VAC 25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream was classified as Tier 2 when this permit was first issued in 2001 since there was no water quality data available to make a tier determination. The receiving stream is not listed in the current 2006 Virginia

Water Quality Assessment 305(b)/303(d) IR. Therefore, the Tier 2 classification will remain. No significant degradation to the existing water quality will be allowed. In accordance with current DEQ guidance, no significant lowering of water quality is to occur where permit limits are based on the following:

- The dissolved oxygen in the receiving stream is not lowered more than 0.2 mg/L from the existing levels;
- The pH of the receiving stream is maintained within the range 6.0-9.0 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;
- No more than 25% of the unused assimilative capacity is allocated for toxic criteria established for the protection of aquatic life; and
- No more than 10% of the unused assimilative capacity is allocated for criteria for the protection of human health.

The antidegradation policy also prohibits the expansion of mixing zones to Tier 2 waters unless the requirements of 9 VAC 25-260-30.A.2. are met.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the thirty-day average effluent concentration values is greater than the chronic WLA. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:
Effluent data obtained from monitoring conducted on April 1, 2004, April 20, 2006, November 9, 2006, and February 8, 2007, has been reviewed and determined to be suitable for evaluation. Please see **Attachment 9** for a summary of effluent data.

Wasteload allocation analyses were conducted for cadmium, chromium III, copper, lead, nickel, zinc, and ammonia.

b) Mixing Zones and Wasteload Allocations (WLAs):

Antidegradation Wasteload Allocations (AWLAs).

Since the receiving stream has been determined to be a Tier II water, staff must also determine antidegradation wasteload allocations (AWLAs). The steady state complete mix equation is used substituting the antidegradation baseline (C_b) for the in-stream water quality criteria (C_o):

$$AWLA = \frac{C_b(Q_e + Q_s) - (C_s)(Q_s)}{Q_e}$$

Where:
- AWLA = Antidegradation-based wasteload allocation
- C_b = In-stream antidegradation baseline concentration
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia-nitrogen, harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- C_s = Mean background concentration of parameter in the receiving stream.

Calculated AWLAs for the pollutants noted in b. above are presented in **Attachment 7**.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 of 0.0 MGD since it is an impoundment. There is very little turbulent mixing in lakes below the surface. Therefore, it is staff's best professional judgment that the WLA equal the in-stream water quality criteria (C_o). Since the receiving waters are Tier II, the WLAs shall be calculated so that reductions in the quality of the receiving stream will be limited to no more than 25% of the difference between the existing quality and the criteria. The AWLA will therefore be 25% of the in-stream water quality criteria.

c) Effluent Limitations Toxic Pollutants, Outfall 001

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with AWLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

Staff evaluated pH and temperature data derived from in-stream sampling conducted in 2005, 2006, and 2007. This data was used to determine ammonia water quality criteria, AWLAs, and ammonia limits (**Attachment 10**). DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage. It was found that a monthly average ammonia limit of 2.2 mg/L would be needed based on chronic toxicity.

DEQ guidance suggests a TKN limitation of 3 mg/L be used for waters that cannot be easily modeled. TKN limitations are included in the permit to control both ammonia and DO levels. In lieu of an ammonia limit, a monthly average concentration limit of 3.0 mg/L for TKN will remain in the permit. TKN measures organic nitrogen and ammonia-nitrogen. A TKN concentration limit of 3.0 mg/L assumes that the remaining nitrogen is in the form of refractory organic compounds that will not be easily oxidized and that ammonia is removed when the 3.0 mg/L TKN limit is met. .

2) Metals/Organics:

Limits are needed for copper and zinc. See **Attachment 10** for derivation of the limits.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to D.O., carbonaceous biochemical oxygen demand-5 day ($cBOD_5$), total suspended solids (TSS), total kjeldahl nitrogen (TKN), and pH limitations are proposed.

Camp Creek downstream of the impoundment is an area that cannot be modeled using the agency's free flowing stream model for dissolved oxygen due to poor mixing and low velocity in the stream. The fate and transport processes in these areas are not known. Therefore, pollutant limitations for $cBOD_5$, TSS, and TKN are based on agency guidelines for waters that cannot be easily modeled. A discharge meeting these limitations will not normally violate the stream standards even if the stream consists of 100% effluent. DEQ guidance suggests a D.O. limitation of 3.0 mg/L be used for waters that cannot be easily modeled. However, staff determined that a D.O. limitation of 7.0 mg/L for the Zion Crossroads WWTP would ensure that the effluent would not cause a violation of the D.O. criteria. In-stream D.O. sampling conducted downstream from Outfall 001 of the Zion Crossroads WWTP in 2005 and 2006 demonstrates that this D.O. concentration protects the water quality standards.

It is normally staff's practice to equate the Total Suspended Solids limits with the $cBOD_5$ limits. However, in this case, the sewage treatment plant does not have the technological capability to meet a monthly average TSS limit of 10 mg/L. Therefore a monthly average TSS limit of 15 mg/L has been placed in this permit

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9 VAC25-260-170.

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

The monthly average limit of 2.0 mg/L for phosphorus at the 0.10 and 0.70 mgd design flow tiers is based on best professional judgment. It is staff's experience that sewage treatment plant discharges without phosphorus controls will cause algal blooms in ponds, small impoundments, and still waters in general. Since there is no model or chlorophyll criteria by which to derive a phosphorus limit, staff use their experience with facilities that must comply with the 2.0 mg/L requirements of the Nutrient Policy and require the same limit. This limit has been shown to provide sufficient control on phosphorus to avoid nuisance algal blooms. The regulatory basis for this approach is 9 VAC 25-31-220 D.

VPDES Regulation 9 VAC 25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries.

The State Water Control Board adopted Water Quality Criteria for the Chesapeake Bay in March 2005. In addition to the Water Quality Standards, there are three new regulations that necessitate nutrient limitations:

- 9 VAC 25-40 – *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* requires new or expanding discharges with design flows of $\geq$0.04 mgd to treat for TN and TP to either BNR levels (TN = 8.0 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L). The Zion Crossroads WWTP is currently operating at a design flow of 0.10 mgd. This permit reissuance has a planned design flow increase to 0.70 mgd. However, the permittee estimates that in 2012, the average daily flow will be 0.311 mgd. At a TN concentration of 6.0 mg/L and a TP concentration of 0.7 mg/L and an average monthly flow influent of 0.311 mgd, the TN load is increased by approximately 2% and TP loads are adequate as compared to the existing permitted design capacity. This permit requires that any annual TN and TP loadings above and beyond those permitted prior to July 1, 2005 shall be offset (e.g., reuse for irrigation; see Permit Part I.F.9). In addition, this permit reissuance contains a special condition regarding the installation of state-of-the-art technology when the design flow exceeds 0.311 mg/L (see Permit Part 1.E.11).

- 9 VAC 25-720 – *Water Quality Management Plan Regulation* sets forth TN and TP maximum wasteload allocations for facilities with design flows of $\geq$0.5 mgd limiting the mass loading from these discharges.

- 9 VAC 25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia* was approved by the State Water Control Board on September 6, 2006 and became effective January 1, 2007. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit.

Annual average effluent limitations and year to date calculations for Total Nitrogen and Total Phosphorus are included at the 0.311 mgd and 0.70 mgd design flow tiers in this individual permit. Loading limits will be governed by the general permit mentioned above.

f) Effluent Limitations and Monitoring Summary.
The effluent limitations are presented in the following table. At the 0.10 mgd design flow tier, limits were established for flow, $cBOD_5$, TSS, TKN, pH, D.O., Total Phosphorus, *E. Coli,* copper, and zinc. At the 0.70 mgd design flow tier, limits were established for flow, $cBOD_5$, TSS, TKN, pH, D.O., Total Phosphorus, Total Nitrogen, *E. coli,* copper, and zinc. Monitoring was included for Nitrates + Nitrites.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values mg/L, the flow values (MGD) and a conversion factor of 3.785.

The mass loading (lb/d) for nutrients was calculated by multiplying the concentration values mg/L, with the flow values (MGD) and a conversion factor of 8.3438.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19.a Limitations and Monitoring Requirements:

Design flow is 0.1 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the issuance of the CTO for the 0.311 MGD facility or the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (mgd)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1, 3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	2	10 mg/L 3.8 kg/day	15 mg/L 5.7 kg/day	NA	NA	1/W	4 HC
TSS	2	15 mg/L 5.7 kg/day	23 mg/L 8.7 kg/day	NA	NA	5D/W	4 HC
DO	2, 3	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2	3.0 mg/L 2.5 lb/day	4.5 mg/L 3.8 lb/day	NA	NA	1/W	4 HC
E. coli	3	126 n/100mls	NA	NA	NA	2D/W (36 hrs. apart.)	Grab
Total Phosphorus	2	2.0 mg/L 1.7 lb/day	3.0 mg/L 2.5 lb/day	NA	NA	1/W	4 HC
Total Recoverable Copper	3	5.7 µg/L [a]	5.7 µg/L [a]	NA	NA	1/3M [b]	Grab
Total Recoverable Zinc	3	50 µg/L [a]	50 µg/L [a]	NA	NA	1/3M [b]	Grab
Total Hardness[c]	2	NL	NA	NA	NA	1/3M [b]	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards

mgd = Million gallons per day.
NL = No limit; monitor and report.
TIRE Totalizing, indicating and recording equipment.
NA Not applicable.
S.U. Standard units.

1/D = Once every day.
1/W = Once every week.
5D/W = Five days per week.
2D/W = Two days per week.
1/M = Once every month
1/3M = Once every quarter.

4 H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 4-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of 4 (four) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of 4 (four) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. See Compliance Schedule in Part I.C of this permit.

b. Sampling shall be conducted during the calendar quarters (Jan - Mar, Apr - Jun, Jul - Sep, Oct - Nov). The results of quarterly sampling shall be received by DEQ-NRO with the DMR on April 10, July 10, October 10, and January 10. Once compliance with the final limits in the permit is obtained as stated in Part I.C of the permit, monitoring shall be conducted at a monthly frequency.

c. To be measured at the time metals samples are taken.

19.b Limitations and Monitoring Requirements:

During the period beginning with the issuance of a Certificate to Operate (CTO) for the reclamation system and ending with the permit expiration date, the permittee is authorized to manage pollutants in the reclaimed water as described below for reuses specified in the Reclaimed Water Management Plan. The standards shall be met at the point of compliance after all treatment as specified in the Operations and Maintenance Manual.

PARAMETER	BASIS FOR LIMITS	STANDARDS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (mgd)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	1	8 mg/L	NA	NA	NA	3D/W	8H-C
Turbidity (NTU)[a, b]	1	2.0 (Daily Avg.)	NA	NA	5.0	Continuous	Recorded
E. coli (Geometric Mean) [b]	1	11/100mls	NA	NA	35/100 mls	1/D (10 a.m. - 4.p.m.)	Grab
Total Kjeldahl Nitrogen (TKN)	2	NL mg/L	NA	NA	NA	1/M	8H-C
Nitrate+Nitrite, as N	2	NL mg/L	NA	NA	NA	1/M	8H-C
Total Nitrogen [c]	2	6.0 mg/L	NA	NA	NA	1/M	Calculated
Total Phosphorus	2	0.7 mg/L	NA	NA	NA	1/M	8H-C

The basis for the limitations codes are:

1. Draft Reuse Regulations
2. Best Professional Judgment

mgd = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
TIRE = Totalizing, indicating and recording equipment.
S.U. = Standard units.
NTU = Nephelometric Turbidity Units

1/D = Once every day.
3D/W = Three days a week.
1/M = Once per month.

8 H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of 8 (eight) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of 8 (eight) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. Daily average is the arithmetic mean of hourly or more frequent discrete turbidity measurements recorded during a 24-hour period. Should the on-line turbidity meter go out of service, the permittee shall be allowed to manually collect samples for turbidity analysis at four-hour intervals up to a maximum of five days.
b. Standards are Corrective Action Thresholds (CAT). See Parts I.F.3 and 4 of the permit.
c. See Part I.B.3 of the permit for nutrient reporting calculations. Total Nitrogen = Sum of TKN and NO_2+NO_3 N and shall be calculated from the results of those tests.

19.c Limitations and Monitoring Requirements:

Design flow is 0.311 MGD.

Effective Dates: During the period beginning with the issuance of the CTO for the 0.311 mgd facility and lasting until the issuance of the CTO for the 0.7 mgd facility or the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (mgd)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1, 3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	2, 3	10 mg/L 12 kg/day	15 mg/L 18 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2	15 mg/L 18 kg/day	23 mg/L 26 kg/day	NA	NA	5D/W	8H-C
DO	3	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2, 4	3.0 mg/L 7.8 lb/day	4.5 mg/L 12 lb/day	NA	NA	2/M	8H-C
E. coli (Geometric Mean)	3	126/100mls	NA	NA	NA	3D/W (36 hrs. apart)	Grab
Nitrate+Nitrite, as N	4	NL mg/L	NA	NA	NA	2/M	8H-C
Total Nitrogen [a]	4	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen – Year to Date [a]	4	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen - Calendar Year [a]	4	6.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3	2.0 mg/L 5.2 lb/day	3.0 mg/L 7.8 lb/day	NA	NA	1/W	8H-C
Total Phosphorus – Year to Date [a]	4	NL mg/L	NA	NA	NA	2/M	Calculated
Total Phosphorus - Calendar Year [a]	4	0.70 mg/L	NA	NA	NA	1/YR	Calculated
Total Recoverable Copper	3	5.7 µg/L	5.7 µg/L	NA	NA	1/M	Grab
Total Recoverable Zinc	3	50 µg/L	50 µg/L	NA	NA	1/M	Grab
Total Hardness[b]	2	NL	NA	NA	NA	1/M	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. 9 VAC 25-40 (Nutrient Regulation)

mgd = Million gallons per day.
NL = No limit; monitor and report.
TIRE = Totalizing, indicating and recording equipment.
NA = Not applicable.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3D/W = Three days a week.
5D/W = Five days a week.
1/M = Once every month.
2/M = Twice per month. (7 days apart)
1/YR = Once per year.

8 H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of 8 (eight) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of 8 (eight) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. See Part I.B.3 for nutrient reporting calculations. Total Nitrogen = Sum of TKN and NO_2+NO_3 N and shall be calculated from the results of those tests.
b. To be measured at the time metals samples are taken.

19d. Limitations and Monitoring Requirements:

Design flow is 0.7 MGD.

Effective Dates: During the period beginning with the issuance of the CTO for the 0.7 mgd facility and lasting until the permit expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (mgd)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	1, 3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	2, 3	10 mg/L 26 kg/day	15 mg/L 40 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	2	15 mg/L 40 kg/day	23 mg/L 61 kg/day	NA	NA	5D/W	8H-C
DO	3	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2, 4	3.0 mg/L 18 lb/day	4.5 mg/L 26 lb/day	NA	NA	2/M	8H-C
E. coli (Geometric Mean)	3	126/100mls	NA	NA	NA	3D/W (36 hrs. apart)	Grab
Nitrate+Nitrite, as N	4	NL mg/L	NA	NA	NA	2/M	8H-C
Total Nitrogen [a]	4	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen – Year to Date [a]	4	NL mg/L	NA	NA	NA	2/M	Calculated
Total Nitrogen - Calendar Year [a]	4	3.0 mg/L	NA	NA	NA	1/YR	Calculated
Total Phosphorus	3	2.0 mg/L 12 lb/day	3.0 mg/L 18 lb/day	NA	NA	1/W	8H-C
Total Phosphorus – Year to Date [a]	4	NL mg/L	NA	NA	NA	2/M	Calculated
Total Phosphorus - Calendar Year [a]	4	0.30 mg/L	NA	NA	NA	1/YR	Calculated
Total Recoverable Copper	3	5.7 µg/L	5.7 µg/L	NA	NA	1/M	Grab
Total Recoverable Zinc	3	50 µg/L	50 µg/L	NA	NA	1/M	Grab
Total Hardness[b]	2	NL	NA	NA	NA	1/M	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgment
3. Water Quality Standards
4. 9 VAC 25-40 (Nutrient Regulation)

mgd = Million gallons per day.
NL = No limit; monitor and report.
TIRE = Totalizing, indicating and recording equipment.
NA = Not applicable.
S.U. = Standard units.

1/D = Once every day.
3D/W = Three days a week.
5D/W = Five days a week.
1/M = Once every month.
2/M = Twice per month. (7 days apart)
1/YR = Once per year.

8 H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of 8 (eight) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of 8 (eight) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

a. See Part I.B.3 for nutrient reporting calculations. Total Nitrogen = Sum of TKN and NO_2+NO_3 N and shall be calculated from the results of those tests.

b. To be measured at the time metals samples are taken.

20. Other Permit Requirements :

a) Part I.B. of the permit contains quantification levels and compliance reporting instructions.
9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the nitrogen and phosphorus parameters shall be in accordance with the calculations set for in 9 VAC 25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.*

b) Part I.C. of the permit details the requirements for a Schedule of Compliance for Copper and Zinc

The VPDES Permit Regulation, 9 VAC 25-31-250 allows use of Compliance Schedules to allow facilities sufficient time for upgrades to meet newly established effluent limits. The permit contains newly established limits for copper and zinc. Since the facility was not designed to meet these limits, a schedule of compliance is required to provide the permittee time for facility upgrade. The permittee shall achieve compliance with the final limits specified in Part I.A. of the VPDES permit in accordance with the following schedule as contained in Part I.C. of the permit:

Action	Time Frame
1. Submit proposed plan to achieve compliance with final limits.	Within 90 days after the effective date of the permit.
2. Report of progress on attainment of final limits.	January 10, 2010, 2011, 2012, 2013.
3. Achieve compliance with final limits.	Within 4 years from the effective date of the permit.

c) Permit Section Part I.D., details the requirements of a Pretreatment Program.
Louisa County is required to implement an approved pretreatment program in accordance with the Pretreatment Regulations (9 VAC 25-31-800). The County operates two sewage treatment plants with a combined flow of 0.5 mgd. The program currently has one categorical industry, Paul Decorative Products, that discharges into the Louisa Regional WWTP (VA0067954). Because the Zion Crossroads WWTP is part of the County's wastewater treatment system, it too must receive a pretreatment condition in the permit even though the facility currently does not have any significant industrial users. Should the Zion Crossroads WWTP receive a discharge from a significant industrial user, the County will have to develop local limits for the plant and issue a permit to the discharger.

21. Other Special Conditions :

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b) Indirect Dischargers. Required by VPDES Permit Regulation, 9 VAC 25-31-280 B.9 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. By December 31, 2007, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 D, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class I operator.

f) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet a Reliability Class of I.

g) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4 requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

h) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P, 220.B.2, and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements may be derived from the Virginia Department of Health's Biosolids Use Regulations, 12 VAC 5-585-10 et seq. The facility includes a treatment works treating domestic sewage.

i) Nutrient Trading and Offsets. When the average monthly flow from this facility reaches 0.31 mgd, any annual TN and TP loadings above and beyond those permitted prior to July 1, 2005 shall be offset subject to a DEQ-approved trading contract prepared in accordance with sections 62.1-44.19:12 - :10 of the law and 9 VAC 25-820-10 et seq.

The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

j) E3/E4. The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus are suspended during any calendar year in which the facility is considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level, provided that certain conditions are met.

k) Final Effluent Reuse. The DEQ encourages the conservation and reuse of water. The permittee has requested authorization to reuse treated effluent to irrigate an adjacent golf course when the CTO is issued for the 0.7 mgd facility. Aside from disinfection and access restriction guidelines in the proposed DEQ Reclamation and Reuse Regulations and the Sewage Collection and Treatment Regulations (SCAT), this permit contains a special condition authorizing the reuse of the final effluent as well as disinfection and use requirements. This authorization is subject to DEQ review and approval of detailed plans and specifications.

l) TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

22. Reuse Special Conditions:

a) Application for Reclamation and Reuse and Reclaimed Water Management Plan -- In accordance with 9 VAC 25-740-100 of the Draft Water Reclamation and Reuse Regulation, a detailed Reclaimed Water Management (RWM) Plan and a Soil-Moisture Monitoring Plan shall be submitted to DEQ-NRO for approval 90 days prior to commencing reuse or when the monthly average flow of the Zion Crossroads WWTP reaches 90% of 311,000 gpd (279,000 gpd).

b) Operations and Maintenance Manual When the design flow of this facility reaches 279,000 gpd and/or 90 days prior to commencing reuse, the permittee shall submit a revised O&M manual to DEQ-NRO for review and approval that encompasses reclamation and reuse in accordance with 9 VAC 25-740-140. Upon approval, these revisions to the O&M Manual shall become an enforceable part of the permit.

c) Turbidity Monitoring – In accordance with 9 VAC 25-740-70, the daily average turbidity measurement shall be less than or equal to 2 NTUs. If the turbidity measurement exceeds the Corrective Action Threshold (CAT) of 5 NTU and continuous sampling or resampling within one hour of the initial measurement shows that the turbidity measurement still exceeds the CAT, the reclaimed wastewater shall be deemed substandard or reject water and sent to storage for additional treatment, returned to the head of the plant for retreatment, discharged to another permitted reuse system requiring a lower level of treatment not less than Level 2, or sent to a VPDES permitted effluent disposal system provided the reject water meets the effluent limits of the permit. Failure to divert substandard reclaimed wastewater is considered a violation of this permit.

d) Bacteriological Monitoring – 9 VAC 25-740-70 requires the monthly geometric mean for E. coli shall be less than or equal to 11 mm colonies/100 ml. If the level of *E. coli* in the reclaimed water exceeds the *E. coli* CAT of 35 colonies/100 ml, the operator of the reclamation system shall immediately initiate a review of treatment operations and data as outlined in the approved Operations and Maintenance Manual to identify the cause of the exceedance. If two consecutive bacterial monitoring results reach or exceed the CAT, the facility shall be deemed in violation of the permit.

e) Access Control and Advisory Signs – In accordance with 9 VAC 25-740-160, there shall be no uncontrolled public access to the reclamation system or system storage facilities.

f) Operational Limitations – The land application system shall be operated so that wastewater is not conveyed from the site (e.g., no runoff). This may involve reduction and/or cessation of land application during inclement weather.

g) Setback Distances – The following irrigation setback distances are required per 9 VAC 25 740H.1:

a.	Potable water supply wells/springs; public water supply intakes	100 feet
b.	Non-potable water supply wells	10 feet
c.	Limestone rock outcrops and sinkholes	50 feet

h) Minimization of Aerosol Formation – Aerosol formation shall be minimized within 100 feet of occupied dwellings and outdoor eating, drinking, and bathing facilities through the use of low trajectory nozzles for spray irrigation, above-ground drip irrigation, or other means.

i) Reclaimed Water Storage Requirements – Off-line reject water storage equal to the average daily permitted flow shall be provided at this facility when the CTO is issued for the reclamation system. Reject water storage shall be designed and operated to prevent a discharge to surface waters of the state except in the event of a storm greater than the 25-year, 24-hour storm (9 VAC 25-740-110).

If it can be shown that the all reject water can be returned to the head of the plant for retreatment, discharged to another permitted reuse system requiring a lower level of treatment not less than Level 2, or sent to a VPDES permitted effluent disposal system successfully, reject water storage shall not be required at this facility.

j) Notification of Application of Reclaimed Water Not Meeting Level 1 Standards – If the treatment of the reclaimed water fails more than once during a seven-day period to comply with Level 1 standards, the permittee shall notify the golf course of the treatment failures and advise the golf course of precautions to be taken to protect public health when using the reclaimed water in areas accessible to the public or where human contact with the reclaimed water is likely.

k) Recordkeeping and Reporting Requirements – In accordance with 9 VAC 25-740-190 through 200, a monthly summary of operating records regarding reclamation and reuse shall be maintained at the Zion Crossroads WWTP. A certified monthly monitoring report for reclamation and reuse that encompasses the parameters in Part I.A.2 of this permit shall be submitted to DEQ-NRO by the 10th of each month. An annual report shall be submitted to DEQ-NRO by February 10 of each year in accordance with 9 VAC 25-740-200.C.

l) Reclamation and Reuse Regulations Reopener – The permit may be reopened to incorporate any changes to these regulations

22. Permit Section Part II: Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a) Monitoring Effluent Limitations:
1) Limits based upon the Virginia Water Quality Standards were calculated using continuous flow instead of intermittent flow since a significant number of residential connections are now served by the collection system.
2) Fecal coliform limitations have been replaced with *E. coli* limitations.
3) Total Residual Chlorine Limits have been removed since UV disinfection is being used.
4) Reporting of loading for TKN has been changed from kg/day to lb/day.

5) A weekly average limit for total phosphorus has been added and the frequency of monitoring has been

changed from monthly to weekly.

6) Monitoring and effluent limitations were added for nitrogen (total nitrogen, total nitrogen – year to date, total nitrogen – calendar year) and phosphorus (total phosphorus, total phosphorus – year to date, total phosphorus – calendar year).
7) Monitoring, a compliance schedule, and permit limits for copper and zinc have been placed in this permit.
8) The monitoring frequency for TSS has been changed to 5D/week.
9) The monitoring frequency for *E. coli* at the 0.1 mgd design flow tier has been changed to 2D/week.

24. Variances/Alternate Limits or Conditions: None

25. Public Notice Information:

First Public Notice Date:	June 26, 2008	Second Public Notice Date:	July 3, 2008
	September 18, 2008		September 25, 2008

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: Northern DEQ Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3837, atwesternik@deq.virginia.gov. See **Attachment 11** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

This sewage treatment plant discharges into an impoundment of Camp Creek, which in not listed as impaired. However, the South Anna River downstream from Camp Creek is impaired for recreational use due to the presence of E. Coli. EPA approved a bacterial Total Maximum Daily Load (TMDL) for the Pamunkey River Basin on August 2, 2006. Within this TMDL is an allocated *E. coli* load of 1.22 E 12 cfu/year for Outfall 001 for the Zion Crossroads WWTP. The 2006 Virginia Water Quality Criterion for E. coli is 126 cfu/100 ml of water. The *E. coli* criterion is met in the discharge through UV disinfection.

27. Additional Comments:

Previous Board Action(s): This permit was initially issued on October 18, 2001. When the draft permit was advertised for public comment before October 18, 2001, DEQ received several requests for a public hearing. DEQ decided to deny the public hearing requests and issue the permit. Mr. David Bailey, an attorney representing a number of the requestors for a public hearing, filed a Notice of Appeal of the permit. Due to this action, the State Water Control Board (SWCB), decided to postpone the effective date of the permit. A public hearing regarding the permit issuance was conducted on February 12, 2002. The permit was presented to the SWCB by DEQ-NRO staff on March 28, 2002. The SWCB unanimously voted in favor of the staff's recommendation to issue the permit.

Louisa County Water Authority (LCWA) was referred to enforcement on December 18, 2003 for failure to comply with permit effluent monitoring limitations for total phosphorus, TKN, TSS, $cBOD_5$, and failure to submit an in-stream monitoring plan. Compliance was achieved through informal action, and the case was dereferred on September 1, 2005.

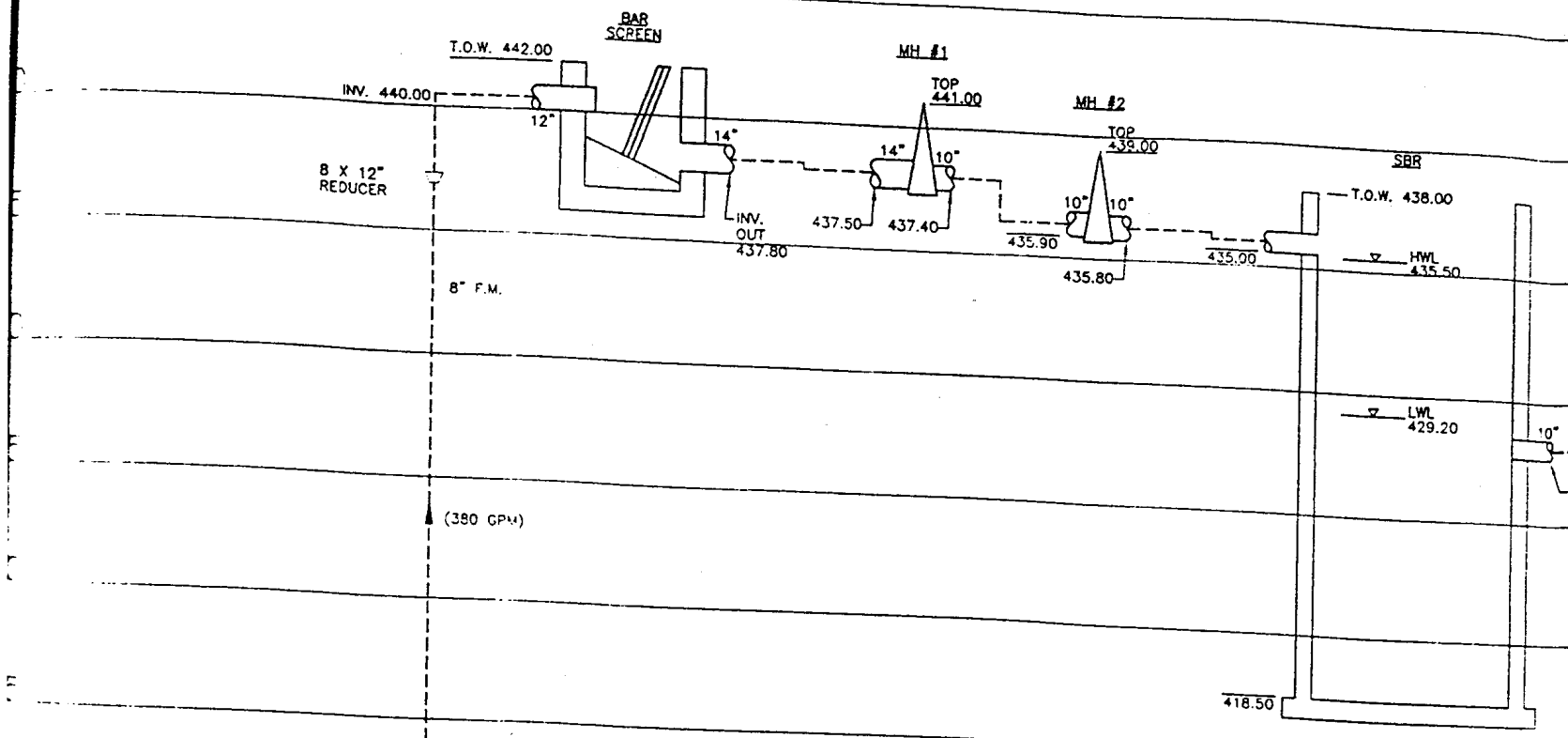
Staff Comments: Reissuance of this permit was delayed due to ongoing negotiations regarding offsets for nutrients.

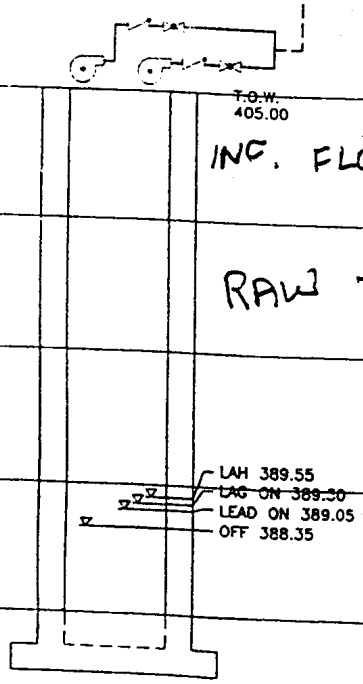
Public Comment: Numerous comments were received regarding this permit reissuance. A public hearing was held on October 22, 2008. The State Water Control Board voted unanimously to approve the permit on December 4, 2008.

EPA Checklist: The checklist can be found in **Attachment 12.**

Attachments

Attachment 1 -	Facility Schematic/Diagram.
Attachment 2	Aerial Photograph of the Impoundment
Attachment 3 -	Boswells Tavern Topographic Map – 172C
Attachment 4 -	Site Inspection Summary from March 2007
Attachment 5 -	Water Quality Standards dated January 2006
Attachment 6 -	90th Percentile pH and Temperature Values
Attachment 7 -	Freshwater Water Quality Criteria and Wasteload Allocations
Attachment 8	Hardness Data
Attachment 9-	Summary of Effluent Data
Attachment 10 -	Limitations Calculations
Attachment 11 -	Public Notice
Attachment 12-	EPA Checklist



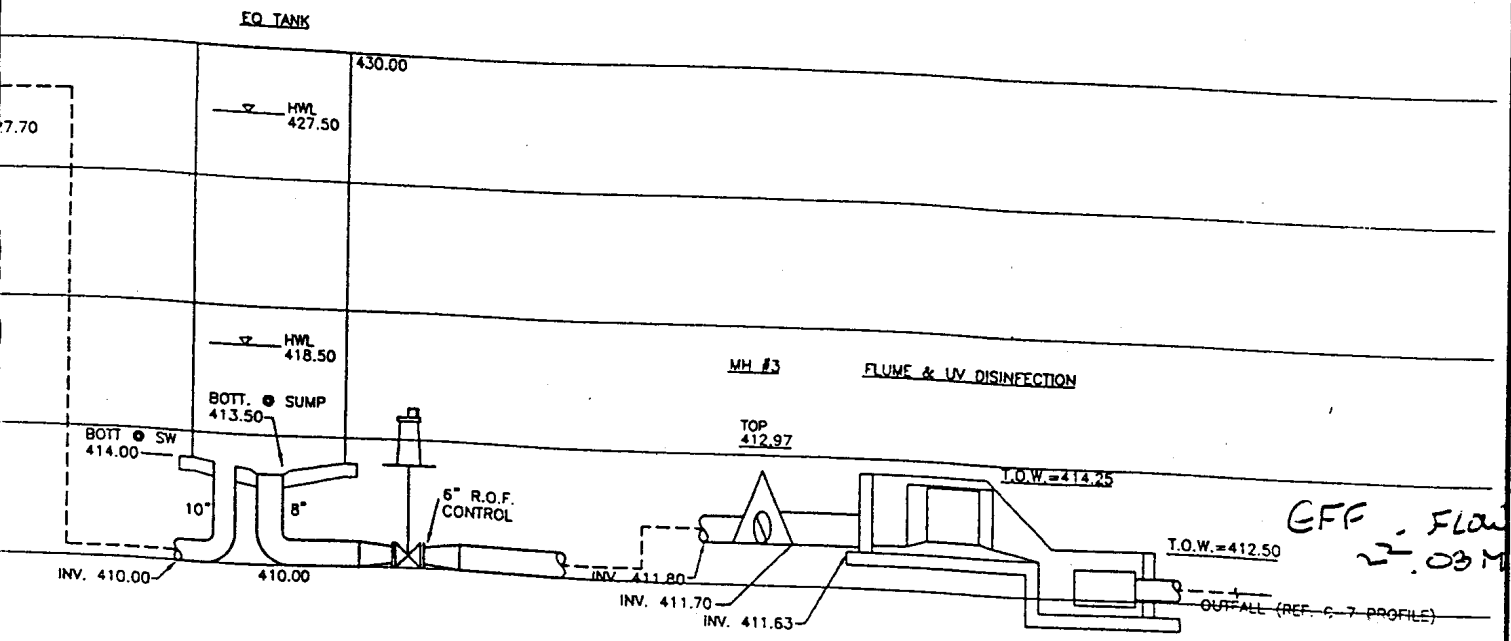


INF. FLOW ~ .03 MGD

RAW PUMP STATION

FLOW ENTERS PLANT AT HILL TO SCREEN. SCREEN PROCESS SBR DECANTS TANK FILLS TO OPERATOR AND SENDS FLOW DISINFECTION AND REMOVED IS TRUCKE

HYDRAU



RAW PUMP STATION. IT IS PUMPED UP
ED INFLUENT ENTERS SBR. AFTER
TO EQUALIZATION TANK. AFTER THE EQ
~~SET LEVEL, DISCHARGE~~ VALVE OPENS
THROUGH PARSHALL FLUME TO UV
FINAL DISCHARGE. SLUDGE
D TO LOUISA REGIONAL WWTP

EFF. FLOW
~ .03 MGD

LIC PROFILE
: 1/4" = 1'

Attachment 1

Dewberry & Davis
A Dewberry Company
9881 Mayland Drive

REVISIONS
| # | By | Date | Remarks |

ZION CROSSROADS
SANITARY SEWER IMPROVEMENTS
WASTEWATER TREATMENT PLANT

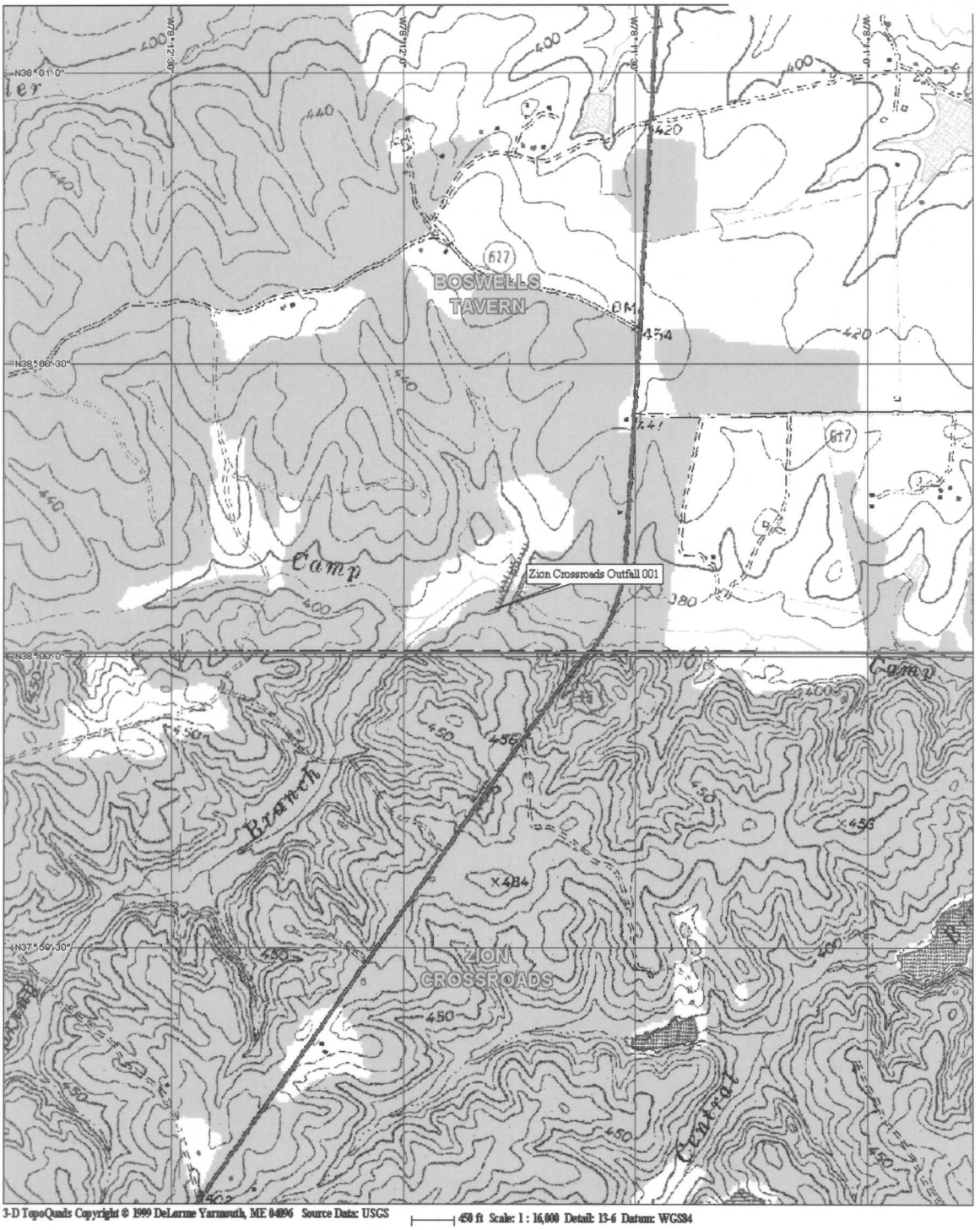
HYDRAULIC PROFILE

COMMONWEALTH OF
R. SCOTT EMERA

Attachment 2

Aerial View of the Impoundment of Camp Creek

Attachment 3



Zion Crossroad Outfall 001
Latitude: 38° 0' 5.1"
Longitude: 78° 11' 49.8"
(Impoundment not shown on topographic map)

Attachment 4

March 28, 2007
MEMORANDUM

To: File

From: Anna Westernik

Subject: March 14, 2007 Visit to the Zion Crossroads WWTP

On March 14, 2007, DEQ staff conducted a site visit of the abovementioned wastewater treatment prior to permit reissuance. Persons present during the inspection were Doug Frasier and myself from DEQ and David Jones of the Louisa County Service Authority.

The sewage treatment plant currently serves approximately 113 homes in the Spring Creek Subdivision and three commercial connections that include a Walmart Distribution Center. A Best Western Hotel should be connected in 2007. Sewage from the Spring Creek Subdivision flows via gravity to a pump station.

The sewage is pumped to an equalization basin. From there it is fed to two a primary treatment unit consisting of two barscreens (one automatic and one manual that is used as a bypass). After primary treatment, the effluent flows to a SBR unit with two units. However, only one is functional at this time. Excess sludge is wasted to an aerobic digester.

Effluent flows from the SBR unit through a Parshall Flume where it is metered and is then disinfected by UV.

Discharge through Outfall 001 is to an impoundment of Camp Creek. Currently, the impoundment is being used as irrigation source for the golf course. Therefore, its level has dropped considerably. The impoundment has an extremely muddied appearance due to the large amount of construction occurring in this area. Some algal growth was observed on the detritus in the impoundment.

DEQ staff traveled downstream of the impoundment to observe Camp Creek at a bridge off Route 15. The stream also had a muddied appearance, with a large amount of sediment present. Some algal growth was present on the rocks. The stream is approximately four feet wide; it is flat with minimal pool and riffle effect and slight meandering. The bottom consists mostly of sand. Salamanders and mollusks were observed.

Table of Parameters [6]

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Acenapthene(µg/l) 83329					1,200	2,700
Acrolein (µg/l) 107028					320	780
Acrylonitrile (µg/l) 107131 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.59	6.6
Aldrin (µg/l) 309002 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	3.0		1.3		0.0013	0.0014
Ammonia (µg/l) 766-41-7 Chronic criterion is a 30-day average concentration not to be exceeded more than once every three 3 years on the average. (see 9 VAC 25-260-155)						
Anthracene (µg/l) 120127					9,600	110,000
Antimony (µg/l) 7440360					14	4,300
Arsenic (µg/l [5]) 7440382	340	150	69	36	10	
Bacteria (see 9 VAC 25-260-160 and 170)						
Barium (µg/l) 7440393					2,000	
Benzene µg/l 71432 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					12	710
Benzidine (µg/l) 92875 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.0012	0.0054
Benzo (a) anthracene (µg/l) 56553 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.044	0.49

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Benzo (b) fluoranthene (µg/l) 205992 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.044	0.49
Benzo (k) fluoranthene (µg/l) 207089 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.044	0.49
Benzo (a) pyrene (µg/l) 50328 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.044	0.49
Bis2-Chloroethyl Ether 111444 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.31	14
Bis2-Chloroisopropyl Ether (µg/l) 39638329					1,400	170,000
Bromoform (µg/l) 75252 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					44	3,600
Butyl benzyl phthalate (µg/l) 85687					3,000	5,200

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Cadmium (µg/l[5]) 7440439 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. **Freshwater acute criterion (µg/l)** $WER\left[e^{\{1.128[\ln(hardness)]-3.828\}}\right]$ **Freshwater chronic criterion (µg/l)** $WER\left[e^{\{0.7852[\ln(hardness)]-3.490\}}\right]$ WER = Water Effect Ratio =1 unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-260-310 e = natural antilogarithm ln = natural logarithm	3.9 WER = 1 $CaCO_3$=100	1.1 WER = 1 $CaCO_3$ = 100	40 WER=1	8.8 WER=1	5	
Carbon tetrachloride (µg/l) 56235 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					2.5	44
Chlordane (µg/l) 57749 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	2.4	0.0043	0.09	0.0040	0.021	0.022
Chloride (µg/l) 16887006 Human Health criterion to maintain acceptable taste and aesthetic quality and applies at the drinking water intake.	860,000	230,000			250,000	
Chlorine, Total Residual (µg/l) 7782505 In DGIF class i and ii trout waters (9 VAC 25-260 subsections 390-540) or waters with threatened or endangered species are subject to the halogen ban (subsection 110.)	19 See 9 VAC 25-260-110	11 See 9 VAC 25-260-110				
Chlorine Produced Oxidant (µg/l) 7782505			13	7.5		
Chlorobenzene (µg/l) 108907					680	21,000

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Chlorodibromomethane (µg/l) 124481 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					4.1	340
Chloroform (µg/l) 67663 Known or suspected carcinogen; however, non-carcinogen calculation used and is protective of carcinogenic effects. Use 30Q5 as default design flow (see footnote 6.)					350	29,000
2-Chloronaphthalene (µg/l) 91587					1,700	4,300
2-Chlorophenol (µg/l) 95578					120	400
Chlorpyrifos (µg/l) 2921882	0.083	0.041	0.011	0.0056		
Chromium III (µg/l[50]) 16065831 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. **Freshwater acute criterion µg/l** $WER[e^{\{0.8190[\ln(hardness)]+3.7256\}}](CF_a)$ **Freshwater chronic criterion µg/l** $WER[e^{\{0.8190[\ln(hardness)]+0.6848\}}](CF_c)$ WER = Water Effect Ratio = 1 unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-260-310 e = natural antilogarithm ln=natural logarithm CF_a=0316 CF_c=0.860	570 (WER=1; $CaCO_3$= 100)	74 (WER=1; $CaCO_3$=100)			100 (total Cr)	
Chromium VI (µg/l[5]) 18540299	16	11	1,100	50		

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Chrysene (µg/l) 218019 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.044	0.49
Copper (µg/l[9]) 7440508 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. **Freshwater acute criterion (µg/l)** $WER[e^{\{0.9422[\ln(hardness)]-1.700\}}](CF_a)$ **Freshwater chronic criterion µg/l** $WER[e^{\{0.8545[\ln(hardness)]-1.702\}}](CF_c)$ WER = Water Effect Ratio =1 unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-260-310. e = natural antilogarithm ln=natural logarithm $CF_a = 0.960$ $CF_c = 0.960$ Acute saltwater criterion is a 24-hour average not to be exceeded more than once every three years on the average.	13 WER=1 $CaCO_3$= 100	9.0 WER=1 $CaCO_3$= 100	9.3 WER=1	6.0 WER=1	1,300	
Cyanide (µg/l) 57125	22	5.2	1.0	1.0	700	220,000
DDD (µg/l) 72548 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0083	0.0084
DDE (µg/l) 72559 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0059	0.0059
DDT (µg/l) 50293 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	1.1	0.0010	0.13	0.0010	0.0059	0.0059

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Demeton (µg/l) 8065483		0.1		0.1		
Dibenz (a,h) anthracene (µg/l) 53703 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.044	0.49
Dibutyl phthalate µg/l 84742					2,700	12,000
Dichloromethane (µg/l) 75092 Known or suspected carcinogen; human health criteria at risk level 10^{-5} Synonym = Methylene Chloride					47	16,000
1,2–Dichlorobenzene (µg/l0) 95501					2,700	17,000
1,3– Dichlorobenzene (µg/l) 541731					400	2,600
1,4 Dichlorobenzene (µg/l) 106467					400	2,600
3,3 Dichlorobenzidine 91941 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.4	0.77
Dichlorobromomethane (µg/l) 75274 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					5.6	460
1,2 Dichloroethane (µg/l) 107062 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					3.8	990
1,1 Dichloroethylene (µg/l) 75354					310	17,000
1,2-trans-dichloroethylene (µg/l) 156605					700	140,000

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
2,4 Dichlorophenol (µg/l) 120832					93	790
2,4 Dichlorophenoxy acetic acid (2,4-D) (µg/l) 94757					100	
1,2-Dichloropropane (µg/l) 78875 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					5.2	390
1,3-Dichloropropene (µg/l) 542756					10	1,700
Dieldrin (µg/l) 60571 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.24	0.056	0.71	0.0019	0.0014	0.0014
Diethyl Phthalate (µg/l) 84662					23,000	120,000
Di-2-Ethylhexyl Phthalate (µg/l) 117817 Known or suspected carcinogen; human health criteria at risk level 10^{-5}. Synonym = Bis2-Ethylhexyl Phthalate.					18	59
2,4 Dimethylphenol (µg/l) 105679					540	2,300
Dimethyl Phthalate (µg/l) 131113					313,000	2,900,000
Di-n-Butyl Phthalate (µg/l) 84742					2,700	12,000
2,4 Dinitrophenol (µg/l) 51285					70	14,000
2-Methyl-4,6-Dinitrophenol (µg/l) 534521					13.4	765

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
2,4 Dinitrotoluene (µg/l) 121142 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					1.1	91
Dioxin 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (ppq) 1746016 Criteria are based on a risk level of 10^{-5} and potency of 1.75 x 10^{4} mg/kg–day^{-1} To calculate an average effluent permit limit, use mean annual stream flow.					1.2	1.2
1,2-Diphenylhydrazine (µg/l) 122667 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.40	5.4
Dissolved Oxygen (mg/l) (See 9 VAC 25-260-50 and 9 VAC 25-260-55)						
Alpha-Endosulfan (µg/l) 959988	0.22	0.056	0.034	0.0087	110	240
Beta-Endosulfan (µg/l) 33213659	0.22	0.056	0.034	0.0087	110	240
Endosulfan Sulfate (µg/l) 1031078					110	240
Endrin (µg/l) 72208	0.086	0.036	0.037	0.0023	0.76	0.81
Endrin Aldehyde (µg/l) 7421934					0.76	0.81
Ethylbenzene (µg/l) 100414					3,100	29,000
Fecal Coliform (see 9 VAC 25-260-160 and 9 VAC 25-260-170)						
Fluoranthene (µg/l) 206440					300	370

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Fluorene (µg/l) 86737					1,300	14,000
Foaming Agents (µg/l) Criterion measured as methylene blue active substances. Criterion to maintain acceptable taste, odor, or aesthetic quality of drinking water and applies at the drinking water intake.					500	
Guthion (µg/l) 86500		0.01		0.01		
Heptachlor (µg/l) 76448 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.52	0.0038	0.053	0.0036	0.0021	0.0021
Heptachlor Epoxide (µg/l) 1024573 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.52	0.0038	0.053	0.0036	0.0010	0.0011
Hexachlorobenzene (µg/l) 118741 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0075	0.0077
Hexachlorobutadiene (µg/l) 87683 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					4.4	500
Hexachlorocyclohexane Alpha-BHC (µg/l) 319846 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.039	0.13
Hexachlorocyclohexane Beta-BHC (µg/l) 319857 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.14	0.46
Hexachlorocyclohexane (µg/l) (Lindane) Gamma-BHC 58899 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.95		0.16		0.19	0.63
Hexachlorocyclopentadiene (µg/l) 77474					240	17,000

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Hexachloroethane (µg/l) 67721 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					19	89
Hydrogen sulfide (µg/l) 7783064		2.0		2.0		
Indeno (1,2,3,-cd) pyrene (µg/l) 193395 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.044	0.49
Iron (µg/l) 7439896 Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					300	
Isophorone (µg/l) 78591 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					360	26,000
Kepone (µg/l) 143500		zero		zero		
Lead (µg/l)[5] 7439921 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the water effect ratio. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. **Freshwater acute criterion (µg/l)** $WER[e^{\{1.273[\ln(hardness)]-1.084\}}]$ **Freshwater chronic criterion (µg/l)** $WER[e^{\{1.273[\ln(hardness)]-3.259\}}]$ WER = Water Effect Ratio =1 unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-260-310 e = natural antilogarithm ln = natural logarithm	120 WER = 1 $CaCO_3$ = 100	14 WER = 1 $CaCO_3$ = 100	240 WER=1	9.3 WER=1	15	
Malathion (µg/l) 121755		0.1		0.1		

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Manganese (µg/l) 7439965 Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					50	
Mercury µg/l[5] 7439976	1.4	0.77	1.8	0.94	0.050	0.051
Methyl Bromide (µg/l) 74839					48	4,000
Methoxychlor (µg/l) 72435		0.03		0.03	100	
Mirex (µg/l) 2385855		zero		zero		
Monochlorobenzene (µg/l) 108907					680	21,000
Nickel (µg/L[9]**)** 744002 Freshwater values are a function of total hardness as calcium carbonate $CaCO_3$ mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. **Freshwater acute criterion µg/l** $WER[e^{\{0.8460[\ln(hardness)] + 1.312\}}](CF_a)$ **Freshwater chronic criterion (µg/l)** $WER[e^{\{0.8460[\ln(hardness)] - 0.8840\}}](CF_c)$ WER =Water Effect Ratio = unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-250-310 e = natural antilogarithm ln = natural logarithm (CF_a)=0.998 (CF_c)=0.997	180 WER =1 $CaCO_3$ = 100	20 WER = 1 $CaCO_3$ = 100	74 WER=1	8.2 WER=1	610	4,600
Nitrate as N (µg/l) 14797558					10,000	

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER		Public Water Supply[3]	All Other Surface Waters[4]
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]		
Nitrobenzene (µg/l) 98953					17	1,900
N-Nitrosodimethylamine (µg/l) 62759 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.0069	81
N-Nitrosodiphenylamine (µg/l) 86306 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					50	160
N-Nitrosodi-n-propylamine (µg/l) 621647 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.05	14
Parathion (µg/l) 56382	0.065	0.013				
PCB 1260 (µg/l) 11096825		0.014		0.030		
PCB 1254 (µg/l) 11097691		0.014		0.030		
PCB 1248 (µg/l) 12672296		0.014		0.030		
PCB 1242 (µg/l) 53469219		0.014		0.030		
PCB 1232 (µg/l) 11141165		0.014		0.030		
PCB 1221 (µg/l) 11104282		0.014		0.030		
PCB 1016 (µg/l) 12674112		0.014		0.030		

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
PCB Total (µg/l) 1336363 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					0.0017	0.0017
Pentachlorophenol (µg/l) 87865 Known or suspected carcinogen; human health criteria risk level at 10^{-5} **Freshwater acute criterion (µg/l)** $e^{(1.005(pH)-4.869)}$ **Freshwater chronic criterion (µg/l)** $e^{(1.005(pH)-5.134)}$	8.7 pH = 7.0	6.7 pH = 7.0	13	7.9	2.8	82
pH See § 9VAC25-260-50						
Phenol (µg/l) 108952					21,000	4,600,000
Phosphorus Elemental (µg/l) 7723140				0.10		
Pyrene (µg/l) 129000					960	11,000
Radionuclides **Gross Alpha Particle Activity (pCi/L)** **Beta Particle & Photon Activity (mrem/yr)** (formerly man-made radio nuclides) **Strontium 90 (pCi/L)** **Tritium (pCi/L)**					15 4 8 20,000	15 4 8 20,000
Selenium (µg/l)[50] 7782492 WER shall not be used for freshwater acute and chronic criteria.	20	5.0	300 WER=1	71 WER=1	170	11,000
Silver (µg/l)[5] 7440224 Freshwater values are a function of total hardness as calcium carbonate ($CaCO_3$) mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400.	3.4 WER=1; $CaCO_3$= 100		2.0 WER=1			

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
Freshwater acute criterion (µg/l) WER $[e^{\{1.72[\ln(\text{hardness})]-6.52\}}]$ (CF_a) WER = Water Effect Ratio = 1 unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-260-310 e = natural antilogarithm ln = natural logarithm (CF_a) = 0.85						
Sulfate (µg/l) Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					250,000	
Temperature See 9 VAC 25-260-50						
1,1,2,2-Tetrachloroethane (µg/l) 79345 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					1.7	110
Tetrachloroethylene (µg/l) 127184 Known or suspected carcinogen; human health criteria at risk level 10^{-5}					8.0	89
Thallium (µg/l) 7440280					1.7	6.3
Toluene (µg/l) 108883					6,800	200,000
Total Dissolved Solids (µg/l) Criterion to maintain acceptable taste, odor or aesthetic quality of drinking water and applies at the drinking water intake.					500,000	
Toxaphene (µg/l) 8001352 The chronic aquatic life criteria have been calculated to also protect wildlife from harmful effects through ingestion of contaminated tissue. Known or suspected carcinogen; human health criteria at risk level 10^{-5}.	0.73	0.0002	0.21	0.0002	0.0073	0.0075
Tributyltin (µg/l) 60105	0.46	0.063	0.38	0.001		

PARAMETER CAS Number	USE DESIGNATION					
	AQUATIC LIFE				HUMAN HEALTH	
	FRESHWATER		SALTWATER			
	Acute[1]	Chronic[2]	Acute[1]	Chronic[2]	Public Water Supply[3]	All Other Surface Waters[4]
1, 2, 4 Trichlorobenzene (µg/l) 120821					260	940
1,1,2-Trichloroethane (µg/l) 79005 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					6.0	420
Trichloroethylene (µg/l) 79016 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					27	810
2, 4, 6 –Trichlorophenol 88062 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					21	65
2–(2, 4, 5 –Trichlorophenoxy propionic acid (Silvex) (µg/l)					50	
Vinyl Chloride (µg/l) 75014 Known or suspected carcinogen; human health criteria at risk level 10^{-5}.					0.23	61
Zinc (µg/l)[5] Freshwater values are a function of total hardness as calcium carbonate ($CaCO_3$) mg/l and the WER. The minimum hardness allowed for use in the equation below shall be 25 and the maximum, hardness shall be 400 even when the actual ambient hardness is less than 25 or greater than 400. **Freshwater acute criterion µg/l** $WER\left[e^{\{0.8473[\ln(\text{hardness})]+0.884\}}\right](CF_a)$ **Freshwater chronic criterion µg/l** $WER\left[e^{\{0.8473[\ln(\text{hardness})]+0.884\}}\right](CF_c)$ WER = Water Effect Ratio = 1 unless shown otherwise under 9 VAC 25-260-140.F and listed in 9 VAC 25-260-310 e = base e exponential function. ln = log normal function CF_a = 0.978 CF_c = 0.986	120 WER=1 $CaCO_3$= 100	120 WER=1 $CaCO_3$= 100	90 WER=1	81 WER=1	9,100	69,000

[1] One hour average concentration not to be exceeded more than once every 3 years on the average, unless otherwise noted.

[2] Four-day average concentration not to be exceeded more than once every 3 years on the average, unless otherwise noted.

[3] Criteria have been calculated to protect human health from toxic effects through drinking water and fish consumption, unless otherwise noted and apply in segments designated as PWS in 9 VAC 25-260-390-540.

[4] Criteria have been calculated to protect human health from toxic effects through fish consumption, unless otherwise noted and apply in all other surface waters not designated as PWS in 9 VAC 25-260-390-540.

[5] Acute and chronic saltwater and freshwater aquatic life criteria apply to the biologically available form of the metal and apply as a function of the pollutant's water effect ratio (WER) as defined in 9 VAC 25-260-140 F (WER X criterion.) Metals measured as dissolved shall be considered to be biologically available, or, because local receiving water characteristics may otherwise affect the biological availability of the metal, the biologically available equivalent measurement of the metal can be further defined by determining a Water Effect Ratio (WER) and multiplying the numerical value shown in 9 VAC 25-260-140 B by the WER. Refer to 9 VAC 25-260-140 F. Values displayed above in the table are examples and correspond to a (WER) of 1.0. Metals criteria have been adjusted to convert the total recoverable fraction to dissolved fraction using a conversion factor. Criteria that change with hardness have the conversion factor listed in the table above.

6 = The flows listed below are default design flows for calculating steady state waste load allocations unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of the water quality criteria.

Aquatic Life:

Acute criteria	1Q10
Chronic criteria	7Q10
Chronic criteria (ammonia)	30Q10

Human Health:

Non-carcinogens	30Q5
Carcinogens	Harmonic mean (An exception to this is for the carcinogen dioxin. The applicable stream flow for dioxin is the mean annual stream flow.)

The following are defined for this section:

"1Q10" means the lowest flow averaged over a period of one day which on a statistical basis can be expected to occur once every 10 climatic years.

"7Q10" means the lowest flow averaged over a period of seven consecutive days that can be statistically expected to occur once every 10 climatic years.

"30Q5" means the lowest flow averaged over a period of 30 consecutive days that can be statistically expected to occur once every five climatic years.

"30Q10" means the lowest flow averaged over a period of 30 consecutive days that can be statistically expected to occur once every 10 climactic years.

"Averaged" means an arithmetic mean.

"Climatic year" means a year beginning on April 1 and ending on March 31.

Attachment 6

Zion Crossroads WWTP (VA0090743)
Instream pH and Temperature Data (2005 and 2006)

Monitoring Date	Upstream pH	Upstream Temperature
Aug-07	5.4	27
Jul-05	5.9	24
July 6, 2006	5.3	22
July 27, 2006	5.2	24
90th Percentile	5.8	26
10th Percentile	5.2	23

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Attachment 7

Facility Name: Zion Crossroads WWTP Permit No.: VA0090743

Receiving Stream: Impoundment of Camp Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	94 mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	0 %	Mean Hardness (as CaCO3) =	190 mg/L
90% Temperature (Annual) =	26 deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	0 %	90% Temp (Annual) =	deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	0 %	90% Temp (Wet season) =	13.7 deg C
90% Maximum pH =	5.8 SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	0 %	90% Maximum pH =	7.6 SU
10% Maximum pH =	5.2 SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	0 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	2	30Q5 =	0 MGD			Discharge Flow =	0.7 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n	Annual Average =	0 MGD				
Early Life Stages Present Y/N? =	n						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	2.7E+03	--	--	na	2.7E+03	--	--	na	2.7E+02	--	--	na	2.7E+02	--	--	na	**2.7E+02**
Acrolein	0	--	--	na	7.8E+02	--	--	na	7.8E+02	--	--	na	7.8E+01	--	--	na	7.8E+01	--	--	na	**7.8E+01**
Acrylonitrile[c]	0	--	--	na	6.6E+00	--	--	na	6.6E+00	--	--	na	6.6E-01	--	--	na	6.6E-01	--	--	na	**6.6E-01**
Aldrin [c]	0	3.0E+00	--	na	1.4E-03	3.0E+00	--	na	1.4E-03	7.5E-01	--	na	1.4E-04	7.5E-01	--	na	1.4E-04	**7.5E-01**	--	na	**1.4E-04**
Ammonia-N (mg/l) (Yearly)	0	1.70E+01	6.46E+00	na	--	1.7E+01	6.5E+00	na	--	4.26E+00	1.61E+00	na	--	4.3E+00	1.6E+00	na	--	**4.3E+00**	**1.6E+00**	na	--
Ammonia-N (mg/l) (High Flow)	0	1.70E+01	4.19E+00	na	--	1.7E+01	4.2E+00	na	--	4.26E+00	1.05E+00	na	--	4.3E+00	1.0E+00	na	--	**4.3E+00**	**1.0E+00**	na	--
Anthracene	0	--	--	na	1.1E+05	--	--	na	1.1E+05	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	na	**1.1E+04**
Antimony	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	na	4.3E+02	--	--	na	4.3E+02	--	--	na	**4.3E+02**
Arsenic	o	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	8.5E+01	3.8E+01	na	--	8.5E+01	3.8E+01	na	--	**8.5E+01**	**3.8E+01**	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Benzene [c]	0	--	--	na	7.1E+02	--	--	na	7.1E+02	--	--	na	7.1E+01	--	--	na	7.1E+01	--	--	na	**7.1E+01**
Benzidine[c]	0	--	--	na	5.4E-03	--	--	na	5.4E-03	--	--	na	5.4E-04	--	--	na	5.4E-04	--	--	na	**5.4E-04**
Benzo (a) anthracene [c]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	**4.9E-02**
Benzo (b) fluoranthene [c]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	**4.9E-02**
Benzo (k) fluoranthene [c]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	**4.9E-02**
Benzo (a) pyrene [c]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	**4.9E-02**
Bis2-Chloroethyl Ether	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	na	1.4E+00	--	--	na	1.4E+00	--	--	na	**1.4E+00**
Bis2-Chloroisopropyl Ether	0	--	--	na	1.7E+05	--	--	na	1.7E+05	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	**1.7E+04**
Bromoform [c]	0	--	--	na	3.6E+03	--	--	na	3.6E+03	--	--	na	3.6E+02	--	--	na	3.6E+02	--	--	na	**3.6E+02**
Butylbenzylphthalate	0	--	--	na	5.2E+03	--	--	na	5.2E+03	--	--	na	5.2E+02	--	--	na	5.2E+02	--	--	na	**5.2E+02**
Cadmium	0	8.1E+00	1.9E+00	na	--	8.1E+00	1.9E+00	na	--	2.0E+00	4.7E-01	na	--	2.0E+00	4.7E-01	na	--	**2.0E+00**	**4.7E-01**	na	--
Carbon Tetrachloride [c]	0	--	--	na	4.4E+01	--	--	na	4.4E+01	--	--	na	4.4E+00	--	--	na	4.4E+00	--	--	na	**4.4E+00**
Chlordane [c]	0	2.4E+00	4.3E-03	na	2.2E-02	2.4E+00	4.3E-03	na	2.2E-02	6.0E-01	1.1E-03	na	2.2E-03	6.0E-01	1.1E-03	na	2.2E-03	**6.0E-01**	**1.1E-03**	na	**2.2E-03**
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	2.2E+05	5.8E+04	na	--	2.2E+05	5.8E+04	na	--	**2.2E+05**	**5.8E+04**	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	4.8E+00	2.8E+00	na	--	4.8E+00	2.8E+00	na	--	**4.8E+00**	**2.8E+00**	na	--
Chlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	na	**2.1E+03**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	3.4E+02	--	--	na	3.4E+02	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	na	**3.4E+01**
Chloroform [C]	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	na	2.9E+03	--	--	na	2.9E+03	--	--	na	**2.9E+03**
2-Chloronaphthalene	0	--	--	na	4.3E+03	--	--	na	4.3E+03	--	--	na	4.3E+02	--	--	na	4.3E+02	--	--	na	**4.3E+02**
2-Chlorophenol	0	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	na	**4.0E+01**
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	2.1E-02	1.0E-02	na	--	2.1E-02	1.0E-02	na	--	**2.1E-02**	**1.0E-02**	na	--
Chromium III	0	9.6E+02	1.3E+02	na	--	9.6E+02	1.3E+02	na	--	2.4E+02	3.1E+01	na	--	2.4E+02	3.1E+01	na	--	**2.4E+02**	**3.1E+01**	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	4.0E+00	2.8E+00	na	--	4.0E+00	2.8E+00	na	--	**4.0E+00**	**2.8E+00**	na	--
Chromium, Total	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Chrysene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	**4.9E-02**
Copper	0	2.5E+01	1.5E+01	na	--	2.5E+01	1.5E+01	na	--	6.2E+00	3.9E+00	na	--	6.2E+00	3.9E+00	na	--	**6.2E+00**	**3.9E+00**	na	--
Cyanide	0	2.2E+01	5.2E+00	na	2.2E+05	2.2E+01	5.2E+00	na	2.2E+05	5.5E+00	1.3E+00	na	2.2E+04	5.5E+00	1.3E+00	na	2.2E+04	**5.5E+00**	**1.3E+00**	na	**2.2E+04**
DDD [C]	0	--	--	na	8.4E-03	--	--	na	8.4E-03	--	--	na	8.4E-04	--	--	na	8.4E-04	--	--	na	**8.4E-04**
DDE [C]	0	--	--	na	5.9E-03	--	--	na	5.9E-03	--	--	na	5.9E-04	--	--	na	5.9E-04	--	--	na	**5.9E-04**
DDT [C]	0	1.1E+00	1.0E-03	na	5.9E-03	1.1E+00	1.0E-03	na	5.9E-03	2.8E-01	2.5E-04	na	5.9E-04	2.8E-01	2.5E-04	na	5.9E-04	**2.8E-01**	**2.5E-04**	na	**5.9E-04**
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--	--	**2.5E-02**	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	**4.9E-02**
Dibutyl phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	na	1.2E+03	--	--	na	1.2E+03	--	--	na	**1.2E+03**
Dichloromethane (Methylene Chloride) [C]	0	--	--	na	1.6E+04	--	--	na	1.6E+04	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	na	**1.6E+03**
1,2-Dichlorobenzene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	**1.7E+03**
1,3-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	na	2.6E+02	--	--	na	2.6E+02	--	--	na	**2.6E+02**
1,4-Dichlorobenzene	0	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	na	2.6E+02	--	--	na	2.6E+02	--	--	na	**2.6E+02**
3,3-Dichlorobenzidine[C]	0	--	--	na	7.7E-01	--	--	na	7.7E-01	--	--	na	7.7E-02	--	--	na	7.7E-02	--	--	na	**7.7E-02**
Dichlorobromomethane [C]	0	--	--	na	4.6E+02	--	--	na	4.6E+02	--	--	na	4.6E+01	--	--	na	4.6E+01	--	--	na	**4.6E+01**
1,2-Dichloroethane [C]	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	na	9.9E+01	--	--	na	9.9E+01	--	--	na	**9.9E+01**
1,1-Dichloroethylene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	**1.7E+03**
1,2-trans-dichloroethylene	0	--	--	na	1.4E+05	--	--	na	1.4E+05	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	na	**1.4E+04**
2,4-Dichlorophenol	0	--	--	na	7.9E+02	--	--	na	7.9E+02	--	--	na	7.9E+01	--	--	na	7.9E+01	--	--	na	**7.9E+01**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	3.9E+02	--	--	na	3.9E+02	--	--	na	3.9E+01	--	--	na	3.9E+01	--	--	na	**3.9E+01**
1,3-Dichloropropene	0	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	na	**1.7E+02**
Dieldrin [C]	0	2.4E-01	5.6E-02	na	1.4E-03	2.4E-01	5.6E-02	na	1.4E-03	6.0E-02	1.4E-02	na	1.4E-04	6.0E-02	1.4E-02	na	1.4E-04	**6.0E-02**	**1.4E-02**	na	**1.4E-04**
Diethyl Phthalate	0	--	--	na	1.2E+05	--	--	na	1.2E+05	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	na	**1.2E+04**
Di-2-Ethylhexyl Phthalate [C]	0	--	--	na	5.9E+01	--	--	na	5.9E+01	--	--	na	5.9E+00	--	--	na	5.9E+00	--	--	na	**5.9E+00**
2,4-Dimethylphenol	0	--	--	na	2.3E+03	--	--	na	2.3E+03	--	--	na	2.3E+02	--	--	na	2.3E+02	--	--	na	**2.3E+02**
Dimethyl Phthalate	0	--	--	na	2.9E+06	--	--	na	2.9E+06	--	--	na	2.9E+05	--	--	na	2.9E+05	--	--	na	**2.9E+05**
Di-n-Butyl Phthalate	0	--	--	na	1.2E+04	--	--	na	1.2E+04	--	--	na	1.2E+03	--	--	na	1.2E+03	--	--	na	**1.2E+03**
2,4 Dinitrophenol	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	na	**1.4E+03**
2-Methyl-4,6-Dinitrophenol	0	--	--	na	7.65E+02	--	--	na	7.7E+02	--	--	na	7.7E+01	--	--	na	7.7E+01	--	--	na	**7.7E+01**
2,4-Dinitrotoluene [C]	0	--	--	na	9.1E+01	--	--	na	9.1E+01	--	--	na	9.1E+00	--	--	na	9.1E+00	--	--	na	**9.1E+00**
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	na	1.2E-06	--	--	na	na	--	--	na	1.2E-07	--	--	na	1.2E-07	--	--	na	**na**
1,2-Diphenylhydrazine[C]	0	--	--	na	5.4E+00	--	--	na	5.4E+00	--	--	na	5.4E-01	--	--	na	5.4E-01	--	--	na	**5.4E-01**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	5.5E-02	1.4E-02	na	2.4E+01	5.5E-02	1.4E-02	na	2.4E+01	**5.5E-02**	**1.4E-02**	na	**2.4E+01**
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	2.4E+02	2.2E-01	5.6E-02	na	2.4E+02	5.5E-02	1.4E-02	na	2.4E+01	5.5E-02	1.4E-02	na	2.4E+01	**5.5E-02**	**1.4E-02**	na	**2.4E+01**
Endosulfan Sulfate	0	--	--	na	2.4E+02	--	--	na	2.4E+02	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	na	**2.4E+01**
Endrin	0	8.6E-02	3.6E-02	na	8.1E-01	8.6E-02	3.6E-02	na	8.1E-01	2.2E-02	9.0E-03	na	8.1E-02	2.2E-02	9.0E-03	na	8.1E-02	**2.2E-02**	**9.0E-03**	na	**8.1E-02**
Endrin Aldehyde	0	--	--	na	8.1E-01	--	--	na	8.1E-01	--	--	na	8.1E-02	--	--	na	8.1E-02	--	--	na	**8.1E-02**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.9E+04	--	--	na	2.9E+04	--	--	na	2.9E+03	--	--	na	2.9E+03	--	--	na	2.9E+03
Fluoranthene	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	na	3.7E+01	--	--	na	3.7E+01	--	--	na	3.7E+01
Fluorene	0	--	--	na	1.4E+04	--	--	na	1.4E+04	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	na	1.4E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	2.5E-03	na	--	--	2.5E-03	na	--	--	2.6E-03	na	--
Heptachlor [c]	0	5.2E-01	3.8E-03	na	2.1E-03	5.2E-01	3.8E-03	na	2.1E-03	1.3E-01	9.5E-04	na	2.1E-04	1.3E-01	9.5E-04	na	2.1E-04	1.3E-01	9.5E-04	na	2.1E-04
Heptachlor Epoxide[c]	0	5.2E-01	3.8E-03	na	1.1E-03	5.2E-01	3.8E-03	na	1.1E-03	1.3E-01	9.5E-04	na	1.1E-04	1.3E-01	9.5E-04	na	1.1E-04	1.3E-01	9.5E-04	na	1.1E-04
Hexachlorobenzene[c]	0	--	--	na	7.7E-03	--	--	na	7.7E-03	--	--	na	7.7E-04	--	--	na	7.7E-04	--	--	na	7.7E-04
Hexachlorobutadiene[c]	0	--	--	na	5.0E+02	--	--	na	5.0E+02	--	--	na	5.0E+01	--	--	na	5.0E+01	--	--	na	5.0E+01
Hexachlorocyclohexane Alpha-BHC[c]	0	--	--	na	1.3E-01	--	--	na	1.3E-01	--	--	na	1.3E-02	--	--	na	1.3E-02	--	--	na	1.3E-02
Hexachlorocyclohexane Beta-BHC[c]	0	--	--	na	4.6E-01	--	--	na	4.6E-01	--	--	na	4.6E-02	--	--	na	4.6E-02	--	--	na	4.6E-02
Hexachlorocyclohexane Gamma-BHC[c] (Lindane)	0	9.5E-01	na	na	6.3E-01	9.5E-01	--	na	6.3E-01	2.4E-01	--	na	6.3E-02	2.4E-01	--	na	6.3E-02	2.4E-01	--	na	6.3E-02
Hexachlorocyclopentadiene	0	--	--	na	1.7E+04	--	--	na	1.7E+04	--	--	na	1.7E+03	--	--	na	1.7E+03	--	--	na	1.7E+03
Hexachloroethane[c]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	na	8.9E+00	--	--	na	8.9E+00	--	--	na	8.9E+00
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	5.0E-01	na	--	--	5.0E-01	na	--	--	5.0E-01	na	--
Indeno (1,2,3-cd) pyrene [c]	0	--	--	na	4.9E-01	--	--	na	4.9E-01	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	na	4.9E-02
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Isophorone[c]	0	--	--	na	2.6E+04	--	--	na	2.6E+04	--	--	na	2.6E+03	--	--	na	2.6E+03	--	--	na	2.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Lead	0	2.7E+02	3.1E+01	na	--	2.7E+02	3.1E+01	na	--	6.7E+01	7.6E+00	na	--	6.7E+01	7.6E+00	na	--	6.7E+01	7.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--	--	2.5E-02	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	na	5.1E-02	1.4E+00	7.7E-01	na	5.1E-02	3.5E-01	1.9E-01	na	5.1E-03	3.5E-01	1.9E-01	na	5.1E-03	3.5E-01	1.9E-01	na	5.1E-03
Methyl Bromide	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	na	4.0E+02	--	--	na	4.0E+02	--	--	na	4.0E+02
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	7.5E-03	na	--	--	7.5E-03	na	--	--	7.5E-03	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Monochlorobenzene	0	--	--	na	2.1E+04	--	--	na	2.1E+04	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	na	2.1E+03
Nickel	0	3.1E+02	3.5E+01	na	4.6E+03	3.1E+02	3.5E+01	na	4.6E+03	7.8E+01	8.7E+00	na	4.6E+02	7.8E+01	8.7E+00	na	4.6E+02	7.8E+01	8.7E+00	na	4.6E+02
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Nitrobenzene	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	na	1.9E+02
N-Nitrosodimethylamine[c]	0	--	--	na	8.1E+01	--	--	na	8.1E+01	--	--	na	8.1E+00	--	--	na	8.1E+00	--	--	na	8.1E+00
N-Nitrosodiphenylamine[c]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	na	1.6E+01
N-Nitrosodi-n-propylamine[c]	0	--	--	na	1.4E+01	--	--	na	1.4E+01	--	--	na	1.4E+00	--	--	na	1.4E+00	--	--	na	1.4E+00
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	1.6E-02	3.3E-03	na	--	1.6E-02	3.3E-03	na	--	1.6E-02	3.3E-03	na	--
PCB-1016	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1221	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1232	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1242	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1248	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1254	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB-1260	0	--	1.4E-02	na	--	--	1.4E-02	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--	--	3.5E-03	na	--
PCB Total[c]	0	--	--	na	1.7E-03	--	--	na	1.7E-03	--	--	na	1.7E-04	--	--	na	1.7E-04	--	--	na	1.7E-04

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	8.2E+01	7.7E-03	5.9E-03	na	8.2E+01	1.9E-03	1.5E-03	na	8.2E+00	1.9E-03	1.5E-03	na	8.2E+00	**1.9E-03**	**1.5E-03**	**na**	**8.2E+00**
Phenol	0	--	--	na	4.6E+06	--	--	na	4.6E+06	--	--	na	4.6E+05	--	--	na	4.6E+05	**--**	**--**	**na**	**4.6E+05**
Pyrene	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	na	1.1E+03	--	--	na	1.1E+03	**--**	**--**	**na**	**1.1E+03**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Gross Alpha Activity	0	--	--	na	1.5E+01	--	--	na	1.5E+01	--	--	na	1.5E+00	--	--	na	1.5E+00	**--**	**--**	**na**	**1.5E+00**
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	na	4.0E-01	--	--	na	4.0E-01	**--**	**--**	**na**	**4.0E-01**
Strontium-90	0	--	--	na	8.0E+00	--	--	na	8.0E+00	--	--	na	8.0E-01	--	--	na	8.0E-01	**--**	**--**	**na**	**8.0E-01**
Tritium	0	--	--	na	2.0E+04	--	--	na	2.0E+04	--	--	na	2.0E+03	--	--	na	2.0E+03	**--**	**--**	**na**	**2.0E+03**
Selenium	0	2.0E+01	5.0E+00	na	1.1E+04	2.0E+01	5.0E+00	na	1.1E+04	5.0E+00	1.3E+00	na	1.1E+03	5.0E+00	1.3E+00	na	1.1E+03	**5.0E+00**	**1.3E+00**	**na**	**1.1E+03**
Silver	0	1.0E+01	--	na	--	1.0E+01	--	na	--	2.6E+00	--	na	--	2.6E+00	--	na	--	**2.6E+00**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	1.1E+02	--	--	na	1.1E+02	--	--	na	1.1E+01	--	--	na	1.1E+01	**--**	**--**	**na**	**1.1E+01**
Tetrachloroethylene[C]	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	na	8.9E+00	--	--	na	8.9E+00	**--**	**--**	**na**	**8.9E+00**
Thallium	0	--	--	na	6.3E+00	--	--	na	6.3E+00	--	--	na	6.3E-01	--	--	na	6.3E-01	**--**	**--**	**na**	**6.3E-01**
Toluene	0	--	--	na	2.0E+05	--	--	na	2.0E+05	--	--	na	2.0E+04	--	--	na	2.0E+04	**--**	**--**	**na**	**2.0E+04**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	7.5E-03	7.3E-01	2.0E-04	na	7.5E-03	1.8E-01	5.0E-05	na	7.5E-04	1.8E-01	5.0E-05	na	7.5E-04	**1.8E-01**	**5.0E-05**	**na**	**7.5E-04**
Tributyltin	0	4.6E-01	6.3E-02	na	--	4.6E-01	6.3E-02	na	--	1.2E-01	1.6E-02	na	--	1.2E-01	1.6E-02	na	--	**1.2E-01**	**1.6E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	9.4E+02	--	--	na	9.4E+02	--	--	na	9.4E+01	--	--	na	9.4E+01	**--**	**--**	**na**	**9.4E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	4.2E+02	--	--	na	4.2E+02	--	--	na	4.2E+01	--	--	na	4.2E+01	**--**	**--**	**na**	**4.2E+01**
Trichloroethylene [C]	0	--	--	na	8.1E+02	--	--	na	8.1E+02	--	--	na	8.1E+01	--	--	na	8.1E+01	**--**	**--**	**na**	**8.1E+01**
2,4,6-Trichlorophenol [C]	0	--	--	na	6.5E+01	--	--	na	6.5E+01	--	--	na	6.5E+00	--	--	na	6.5E+00	**--**	**--**	**na**	**6.5E+00**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	6.1E+01	--	--	na	6.1E+01	--	--	na	6.1E+00	--	--	na	6.1E+00	**--**	**--**	**na**	**6.1E+00**
Zinc	0	2.0E+02	2.0E+02	na	6.9E+04	2.0E+02	2.0E+02	na	6.9E+04	5.0E+01	5.1E+01	na	6.9E+03	5.0E+01	5.1E+01	na	6.9E+03	**5.0E+01**	**5.1E+01**	**na**	**6.9E+03**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens,
   Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	4.3E+02
Arsenic	2.3E+01
Barium	na
Cadmium	2.8E-01
Chromium III	1.9E+01
Chromium VI	1.6E+00
Copper	2.3E+00
Iron	na
Lead	4.6E+00
Manganese	na
Mercury	5.1E-03
Nickel	5.2E+00
Selenium	7.5E-01
Silver	1.0E+00
Zinc	2.0E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

0.700 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGI 0.700

	Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	0.000	0.000	0.700	0.700
7Q10	0.000	N/A	0.700	N/A
30Q10	0.000	0.000	0.700	0.700
30Q5	0.000	N/A	0.700	N/A
Harm. Mean	0.000	N/A	0.700	N/A
Annual Avg.	0.000	N/A	0.700	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	0.000	13.700
30Q10 90th% Temp. Mix (deg C)	0.000	13.700
1Q10 90th% pH Mix (SU)	7.600	7.600
30Q10 90th% pH Mix (SU)	7.600	7.600
1Q10 10th% pH Mix (SU)	0.000	N/A
7Q10 10th% pH Mix (SU)	0.000	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3)	118.0	118.0
7Q10 Hardness (mg/L as CaCO3)	118.0	118.0

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	7.600
(7.204 - pH)	-0.396
(pH - 7.204)	0.396
Trout Present Criterion (mg N/l	11.375
Trout Absent Criterion (mg N/L	17.032
Trout Present?	n
Effective Criterion (mg N/L)	17.032

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	0.000
90th Percentile pH (SU)	7.600
MIN	2.850
MAX	7.000
(7.688 - pH)	0.088
(pH - 7.688)	-0.088
Early LS Present Criterion (mg N	3.976
Early LS Absent Criterion (mg N/	6.456
Early Life Stages Present?	n
Effective Criterion (mg N/L)	6.456

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	7.600
(7.204 - pH)	-0.396
(pH - 7.204)	0.396
Trout Present Criterion (mg N/l	11.375
Trout Absent Criterion (mg N/L	17.032
Trout Present?	n
Effective Criterion (mg N/L)	17.032

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	13.700
90th Percentile pH (SU)	7.600
MIN	2.850
MAX	13.700
(7.688 - pH)	0.088
(pH - 7.688)	-0.088
Early LS Present Criterion (mg N	3.976
Early LS Absent Criterion (mg N/	4.191
Early Life Stages Present?	n
Effective Criterion (mg N/L)	4.191

0.700 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGI 0.700

	100% Stream Flows Allocated to Mix (MGD)		Total Mix Flows Stream + Discharge (MGD)	
	Dry Season	Wet Season	Dry Season	Wet Season
1Q10	0.000	0.000	0.700	0.700
7Q10	0.000	N/A	0.700	N/A
30Q10	0.000	0.000	0.700	0.700
30Q5	0.000	N/A	0.700	N/A
Harm. Mean	0.000	N/A	0.700	N/A
Annual Avg.	0.000	N/A	0.700	N/A

Stream/Discharge Mix Values

	Dry Season	Wet Season
1Q10 90th% Temp. Mix (deg C)	0.000	13.700
30Q10 90th% Temp. Mix (deg C)	0.000	13.700
1Q10 90th% pH Mix (SU)	7.600	7.600
30Q10 90th% pH Mix (SU)	7.600	7.600
1Q10 10th% pH Mix (SU)	0.000	N/A
7Q10 10th% pH Mix (SU)	0.000	N/A

	Calculated	Formula Inputs
1Q10 Hardness (mg/L as CaCO3) =	118.000	118.000
7Q10 Hardness (mg/L as CaCO3) =	118.000	118.000

Ammonia - Dry Season - Acute

90th Percentile pH (SU)	7.600
(7.204 - pH)	-0.396
(pH - 7.204)	0.396
Trout Present Criterion (mg N/l	11.375
Trout Absent Criterion (mg N/L	17.032
Trout Present?	n
Effective Criterion (mg N/L)	17.032

Ammonia - Dry Season - Chronic

90th Percentile Temp. (deg C)	0.000
90th Percentile pH (SU)	7.600
MIN	2.850
MAX	7.000
(7.688 - pH)	0.088
(pH - 7.688)	-0.088
Early LS Present Criterion (mg N	3.976
Early LS Absent Criterion (mg N/	6.456
Early Life Stages Present?	n
Effective Criterion (mg N/L)	6.456

Ammonia - Wet Season - Acute

90th Percentile pH (SU)	7.600
(7.204 - pH)	-0.396
(pH - 7.204)	0.396
Trout Present Criterion (mg N/l	11.375
Trout Absent Criterion (mg N/L	17.032
Trout Present?	n
Effective Criterion (mg N/L)	17.032

Ammonia - Wet Season - Chronic

90th Percentile Temp. (deg C)	13.700
90th Percentile pH (SU)	7.600
MIN	2.850
MAX	13.700
(7.688 - pH)	0.088
(pH - 7.688)	-0.088
Early LS Present Criterion (mg N	3.976
Early LS Absent Criterion (mg N/	4.191
Early Life Stages Present?	n
Effective Criterion (mg N/L)	4.191

Zion Crossroads Wastewater Treatment Plant Expansion
Louisa County, VA
April 2008

Zion Crossroads WWTP - Hardness Data

Treatment Plant Effluent:		
Sample #	Sample Date	Total Hardness (mg/l)
1	8/28/2007	181
2	9/6/2007	213
3	9/11/2007	202
4	9/20/2007	181
5	2/22/2008	188
6	2/29/2008	194
7	3/4/2008	168
	Average =	**190**

Camp Creek Lake:		
Sample #	Sample Date	Total Hardness (mg/l)
1	8/28/2007	44
2	8/30/2007	43
3	9/6/2007	97
4	9/11/2007	193
	Average =	**94**

Camp Creek: (In stream above impoundment)		
Sample #	Sample Date	Total Hardness (mg/l)
1	8/28/2007	45
2	8/30/2007	61
3	9/6/2007	58
4	9/11/2007	57
	Average =	**55**

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY MONITORING
ATTACHMENT A, PAGE 1 of 5

FACILITY NAME: Zion Crossroads WWTP
ADDRESS: State Route 15, Zion Crossroads, VA

VPDES PERMIT NO. VA0090743
OUTFALL NO. 001

DEQ Parameter No.	EPA Parameter No.	Parameter	EPA Analysis No.	Quantification Level[1] (ΦG/L)	Reporting Results [1] (ΦG/L)	Sample Type[2]	Sample Frequency[3]	Specific Target Value[4] (ΦG/L)
METALS								
-		Antimony (Dissolved)	1638/200.8	0.1	.55	G	1/5 YR	NA
-	-	Arsenic III (Dissolved)	1638/200.8	1.00	<1.0	G	1/5 YR	36.00
440	01025	Cadmium (Dissolved)	1638/200.8	.10	0.14	G	1/5 YR	0.18
232	01033	Chromium III	1638/200.8	1.0	2.57	G	1/5 YR	98.43
231	01220	Chromium VI	1638/200.8	10.0	Not analyzed<10.0	G	1/5 YR	1.60
442	01040	Copper (Dissolved)	1638/200.8	.30	2.38	G	1/5 YR	0.92
405	01049	Lead (Dissolved)	1638/200.8	.1	.73	G	1/5 YR	4.92
444	71900	Mercury (Dissolved)	1638/200.8	.0005	<.00050	G	1/5 YR	1.00
445	01065	Nickel (Dissolved)	1638/200.8	1.0	2.94	G	1/5 YR	10.17
446	01145	Selenium (Dissolved)	1638/200.8	2.00	<2.0	G	1/5 YR	2.00
447	01075	Silver (Dissolved)	1638/200.8	.1	<.10	G	1/5 YR	0.12
448	01092	Zinc (Dissolved)	1638/200.8	1.00	486	G	1/5 YR	6.50
PESTICIDES/PCB'S								
332	39330	Aldrin	608	0.05	<.05	G or C	1/5 YR	N/A
333	39350	Chlordane	608	0.2	<0.2	G or C	1/5 YR	N/A
334	77969	Chlorpyrifos (Dursban)	8141	0.5	<0.5	G or C	1/5 YR	N/A
-	-	DDD	608	0.1	<0.1	G or C	1/5 YR	N/A
-	-	DDE	608	0.1	<0.1	G or C	1/5 YR	N/A
335	39370	DDT	608	0.1	<0.1	G or C	1/5 YR	N/A
336	39560	Demeton	8141	0.5	<0.5	G or C	1/5 YR	N/A
337	39380	Dieldrin	608	0.1	<0.1	G or C	1/5 YR	N/A
-	-	Endosulfan	608	0.1	<0.1	G or C	1/5 YR	N/A
339	39390	Endrin	608	0.1	<0.1	G or C	1/5 YR	N/A
340	39580	Guthion	8141	.5	<0.5	G or C	1/5 YR	N/A
341	39410	Heptachlor	608	0.05	<0.05	G or C	1/5 YR	N/A
342	77835	Hexachlorocyclohexane (Lindane)	608	0.05	<0.05	G or C	1/5 YR	N/A
-	-	Kepone	625	10.0	<10	G or C	1/5 YR	N/A
343	39530	Malathion	SW846,8141	0.5	<0.5	G or C	1/5 YR	N/A
344	39480	Methoxychlor	608	0.5	<0.5	G or C	1/5 YR	N/A
345	39755	Mirex	608	10.0	<10	G or C	1/5 YR	N/A
346	39540	Parathion	SW846,8141	0.5	<0.5	G or C	1/5 YR	N/A
641	-	PCB-1242	608	1.0	<1.0	G or C	1/5 YR	N/A
642	-	PCB-1254	608	1.0	<1.0			

Attachment 9

FACILITY NAME: Zion Crossroads WWTP
ADDRESS: State Route 15, Zion Crossroads, VA

VPDES PERMIT NO. VA0090743
OUTFALL NO. 001

DEQ Parameter No.	EPA Parameter No.	Parameter	EPA Analysis No.	Quantification Level[1] (Φg/L)	Reporting Results [1] (Φg/L)	Sample Type[2]	Sample Frequency[3]	Specific Target Value[4] (Φg/L)
643	-	PCB-1221	608	1.0	<1.0	G or C	1/5 YR	N/A
644	-	PCB-1232	608	1.0	<1.0	G or C	1/5 YR	N/A
645	-	PCB-1248	608	1.0	<1.0	G or C	1/5 YR	N/A
618	39508	PCB-1260	608	1.0	<1.0	G or C	1/5 YR	N/A
646		PCB-1016	608	1.0	<1.0	G or C	1/5 YR	N/A
349	39400	Toxaphene	608	5.0	<5.0	G or C	1/5 YR	N/A
BASE NEUTRAL EXTRACTABLES								
-	-	Acenaphthene	625	10.0	<10	G or C	1/5 YR	N/A
275	34222	Anthracene	625	10.0	<10	G or C	1/5 YR	N/A
276	34526	Benzo(a) anthracene	625	10.0	<10	G or C	1/5 YR	N/A
648	-	Benzo(b) fluoranthene	625	10.0	<10	G or C	1/5 YR	N/A
278	34242	Benzo(k) fluoranthene	625	10.0	<10	G or C	1/5 YR	N/A
277	34247	Benzo(a)pyrene	625	10.0	<10	G or C	1/5 YR	N/A
-	-	Butyl benzyl phthalate	625	10.0	<10	G or C	1/5 YR	N/A
282	34320	Chrysene	625	10.0	<10	G or C	1/5 YR	N/A
654	-	Dibenz(a,h)anthracene	625	20.0	<10	G or C	1/5 YR	N/A
-	-	Dibutyl phthalate	625	10.0	<10	G or C	1/5 YR	N/A
259	34536	1,2-Dichlorobenzene	625	10.0	<10	G or C	1/5 YR	N/A
264	34566	1,3-Dichlorobenzene	625	10.0	<10	G or C	1/5 YR	N/A
266	34571	1,4-Dichlorobenzene	625	10.0	<10	G or C	1/5 YR	N/A
-	-	Diethyl phthalate	625	10.0	<10	G or C	1/5 YR	N/A
170	-	Di-2-Ethylhexyl Phthalate	625	10.0	<10	G or C	1/5 YR	N/A
239	34611	2,4-Dinitrotoluene	625	10.0	<10	G or C	1/5 YR	N/A
287	34376	Fluoranthene	625	10.0	<10	G or C	1/5 YR	N/A
288	34381	Fluorene	625	10.0	<10	G or C	1/5 YR	N/A
651	-	Indeno(1,2,3-cd)pyrene	625	20.0	<10	G or C	1/5 YR	N/A
650	-	Isophorone	625	10.0	<10	G or C	1/5 YR	N/A
293	34696	Naphthalene	625	10.0	<10	G or C	1/5 YR	N/A
-	-	Nitrobenzene	625	10.0	<10	G or C	1/5 YR	N/A
296	34469	Pyrene	625	10.0	<10	G or C	1/5 YR	N/A
-	-	1,2,4 Trichlorobenzene	625	10.0	<10	G or C	1/5 YR	N/A
VOLATILES								
216	34030	Benzene	624	5.0	<5	G	1/5 YR	N/A
484	32104	Bromoform	624	5.0	<5	G	1/5 YR	N/A

FACILITY NAME: Zion Crossroads WWTP VPDES PERMIT NO. VA0090743
ADDRESS: State Route 15, Zion Crossroads, VA OUTFALL NO. 001

DEQ Parameter No.	EPA Parameter No.	Parameter	EPA Analysis No.	Quantification Level[1] (Φg/L)	Reporting Results [1] (Φg/L)	Sample Type[2]	Sample Frequency[3]	Specific Target Value[4] (Φg/L)
236	32102	Carbon Tetrachloride	624	5.0	<5.0	G	1/5 YR	N/A
652	-	Chlorodibromomethane	624	5.0	<5.0	G	1/5 YR	N/A
223	32106	Chloroform	624	5.0	<5.0	G	1/5 YR	N/A
649		Dichloromethane	624	5.0	<5.0	G	1/5 YR	N/A
244	79603	Dichlorobromomethane	624	5.0	<5.0	G	1/5 YR	N/A
260	34531	1,2-Dichloroethane	624	5.0	<5.0	G	1/5 YR	N/A
-	-	1,1-Dichloroethylene	624	5.0	<5.0	G	1/5 YR	N/A
172	34371	Ethylbenzene	624	5.0	<5.0	G	1/5 YR	N/A
653		Monochlorobenzene	624	5.0	<5.0	G	1/5 YR	N/A
220	34475	Tetrachloroethylene	624	5.0	<5.0	G	1/5 YR	N/A
222	34010	Toluene	624	5.0	<5.0	G	1/5 YR	N/A
155	39180	Trichloroethylene	624	5.0	<5.0	G	1/5 YR	N/A
173	39175	Vinyl Chloride	624	10.0	<10.0	G	1/5 YR	N/A
ACIDS EXTRACTABLES								
-	-	2-Chlorophenol	625	10.0	<10.0	G or C	1/5 YR	N/A
-	-	2,4 Dichlorophenol	625	10.0	<10.0	G or C	1/5 YR	N/A
-	-	2,4 Dimethylphenol	625	10.0	<10.0	G or C	1/5 YR	N/A
210	39032	Pentachlorophenol	625	50.0	<50.0	G or C	1/5 YR	N/A
175	46000	Phenol[8]	625	10.0	<10.0	G or C	1/5 YR	N/A
602	34621	2,4,6-Trichlorophenol	625	10.0	<10.0	G or C	1/5 YR	N/A
MISCELLANEOUS								
-	-	Chlorides (mg/L)	SM45001C	.5 mg/l	18.6 mg/L	C	1/5 YR	N/A
005	50060	Chlorine, Total Residual	330.5	.03 mg/l	<.03 mg/l	G	1/5 YR	N/A
018	00720	Cyanide	335.2	.005 mg/l	<.005 mg/l	G	1/5 YR	N/A
137	00900	Hardness (as mg/L $CaCO_3$)	SM2340C	2.0 mg/l	134 mg/L	C	1/5 YR	N/A
-	-	Hydrogen Sulfide	376.2	0.2 mg/l	<.20 mg/l	G	1/5 YR	N/A
-	-	Nitrate (as mg/L Nitrogen)	SM4500N03E	0.02 MG/L	11.0 mg/L	C	1/5 YR	N/A
009	00945	Sulfate (mg/L)	SM4500SO4D	10.0	13.8 mg/L	C	1/5 YR	N/A
350	30340	Tributyltin[9]	NBSR 85-3295	0.25	<0.25	C	1/5 YR	N/A
252	81551	Xylenes (total)	SW 846 Method 8021B	1.5	<1.5	G	1/5 YR	N/A

Footnotes to Water Quality Monitoring Attachment A

(1) Quantification level (QL) is defined as the lowest concentration used for the calibration of a measurement system when the calibration is in accordance with the procedures published for the required method.

Units for the quantification level and the specific target value are micrograms/liter (Φg/L) unless otherwise specified.

Quality control and quality assurance information shall be submitted to document that the required quantification level has been attained. Data reported by the lab as less than the test method QL shall be reported as "<[QL]" on the Attachment A form, where the actual test method QL shall be substituted for "[QL]".

(2) Sample Type

G = Grab = An individual sample collected in less than fifteen (15) minutes. Substances specified with "grab" sample type shall only be collected as grabs. The permittee may analyze multiple grabs and report the average results provided that the individual grab results are also reported.

C = Composite = A 24-hour composite unless otherwise specified. The composite shall be a combination of individual samples, taken proportional to flow, obtained at hourly or smaller time intervals. The individual samples may be of equal volume for flows that do not vary by +/- 10 percent over a 24-hour period. For composite metals samples, the individual sample aliquots shall be filtered and preserved immediately upon collection and prior to compositing.

(3) Frequency

1/5 YR = once after the start of the third year from the permit's effective date but 180 days prior to permit expiration.
X = no monitoring required

(4) Specific Target Value is the approximate value that may initiate a wasteload allocation analysis. Target values are not wasteload allocations or effluent limitations. The specific target values are subject to change based on additional information such as hardness data, receiving stream flow and design flows.

(5) A specific analytical method is not specified. An appropriate method shall be selected from the following list of EPA methods (or any approved method presented in 40 CFR Part 136) which will achieve a quantification level that is less than the indicated specific target value for each metal. If the test result is less than the specified specific target value, a "<[QL]" shall be reported where the actual analytical test QL is substituted for [QL].

Metal	Analytical Methods
Antimony	204.1; 200.7; 204.2; 1639; 1638; 200.8
Arsenic	200.7; 200.9; 200.8; 1632
Barium	208.1; 200.7; 208.2; 200.8
Cadmium	213.1; 200.7; 213.2; 200.9; 200.8; 1638; 1639; 1637; 1640
Chromium*	218.1; 200.7; 218.2; 218.3; 200.9; 1639; 200.8
Chromium VI	218.4; 1636
Copper	220.1; 200.7; 220.2; 200.9; 1638; 1640; 200.8
Iron	236.1; 200.7; 236.2
Lead	239.1; 200.7; 239.2; 200.9; 200.8; 1638; 1637; 1640
Manganese	243.1; 200.7; 200.9; 243.2; 200.8
Mercury	200.7; 245.1; 200.8; 1631
Nickel	249.1; 200.7; 249.2; 1639; 200.9; 1638; 200.8; 1640
Selenium	200.7; 270.2; 200.8; 1638; 1639; 200.9
Silver	272.1; 200.7; 200.9; 272.2; 1638; 200.8
Zinc	289.1; 200.7; 1638; 1639; 200.8; 289.2.

* Chromium III is measured by the total chromium analysis. If the result of the total chromium analysis is less than or equal to the QL (or specific target value), the result for chromium III can be reported as less than QL.

(6) Any approved method presented in 40 CFR Part 136.

(7) The QL is at the discretion of the permittee. For any substances addressed in 40 CFR Part 136, the permittee shall use one of the approved methods in 40 CFR Part 136.

(8) Requires continuous extraction.

(9) DEQ's approved analysis for TBT may also be used. (See A Manual for the Analysis of Butyltins in Environmental Systems by the Virginia Institute of Marine Science dated November 1996.)

DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER QUALITY MONITORING
ATTACHMENT A, PAGE 4 of 5

FACILITY NAME: Zion Crossroads WWTP
ADDRESS: State Route 15, Zion Crossroads, VA

VPDES PERMIT NO. VA0090743
OUTFALL NO. 001

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. §1001 and 33 U.S.C. §1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

H. BARLOW DELK
Name of Principal Executive Officer or Authorized Agent

GENERAL MANAGER LCWA
Title

Signature of Principal Executive Officer or Authorized Agent

3-18-05
Date

ESS ENVIRONMENTAL SYSTEMS SERVICE, LTD.

isa County Water Authority
David Jones
Box 9
isa, Virginia 23093

Work Order #: 38713
Customer #: 7011

Post-it Fax Note 7671 | Date 2-15-07 | # of pages 2
To ANNA WESTERVELT | From DAVID JONES
Co./Dept. DEQ | Co. LCWA
Phone # | Phone #
Fax # | Fax #

ALYSIS REPORT

PENDIX A TESTING – ZION CROSSROADS

IPLE SOURCE: Effluent
IPLE NUMBER: ESS 26198
MPLE DATE: 04/01/04 – Grab Sample
EIPT DATE: 04/01/04

atiles by Method EPA 624

PARAMETER	RESULT (ug/l)	PQL (ug/l)	ANALYSIS DATE/TIME	ANLYST INIT.
ene	<5	5	04/06/04, 2320	MVC
oform	<5	5	04/06/04, 2320	MVC
on Tetrachloride	<5	5	04/06/04, 2320	MVC
robenzene	<5	5	04/06/04, 2320	MVC
rodibromomethane	<5	5	04/06/04, 2320	MVC
lorobromomethane	<5	5	04/06/04, 2320	MVC
Dichloroethane	<5	5	04/06/04, 2320	MVC
benzene	<5	5	04/06/04, 2320	MVC
achloroethylene	<5	5	04/06/04, 2320	MVC
loroethylene	<5	5	04/06/04, 2320	MVC
l Chloride	<10	10	04/06/04, 2320	MVC

es performed by M.J. Reider Associates, Inc.

EWED BY: Dennis T. Brown / Laboratory Manager
ORT DATE: 05/28/04

ENVIRONMENTAL SYSTEMS SERVICE, LTD.

[illegible] 36

[illegible]

Job Location: [illegible]ION CROSSROADS
Collected By: [illegible]LIENT
Date Received: [illegible]6/17/2004

[redacted]

[illegible]STING TO SUPPLEMENT [illegible] COLLECTED

[illegible] POINT: [illegible]

SAMPLE DATE: 06/17/2004

	Result	Unit	Rpt. Limit	Method	Anlys Date	Time	Init
[illegible]dual	<0.[illegible]	mg/l	0.03	EPA 330.5	06/17/04	15:22	TB
	[illegible]	mg/l	0.50	SM 4500C1C	06/22/04		PH
	[illegible]	mg/l	[illegible]	SM 4500SO4D	07/09/04		PH
	[illegible]	mg/l	0.22	SM4500NO3E	06/23/04	16:04	SBB
	[illegible]	mg/l	[illegible]	SM [illegible]	06/29/04		PH

[illegible] POINT: [illegible]

SAMPLE DATE: 06/17/2004

Result	Unit	Rpt. Limit	Method	Anlys Date	Time	Init
[illegible]	mg/l	[illegible]	[illegible]	06/24/04	13:00	AW

[illegible]

ENVIRO-CHEM LABORATORIES, INC.

10367 Old Ke[illegible] Road
Glen Allen, Virginia 23059
Phone 804-550-3[illegible]
Fax 804-550-3876

Certificate of Analysis

County of Louisa
Attn: Pam
PO Box 9
Louisa VA 23093

Project Name : [illegible] Courthouse Road WWTP
Date Received: April 20, 2006
Date Sampled : April 19, 2006
Time Sampled : [illegible]
Date Issued : April 24, 2006

Lab # 1/Sample ID Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Dissolved Copper	BDL	mg/l	.002	04-24/1230	04-26/1320	220.2	GBH
Dissolved Zinc	0.46	mg/l	.02	04-24/1130	04-26/1440	289.1	GBH

Lab # 2/Sample ID Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Phosphorus	1.53	mg/l	.01	04-25/0915	04-25/1610	365.2	ELS
TKN	7.4	mg/l	.1	04-25/1115	04-26/1420	351.4	SEC

Post-it® Fax Note 7671 | Date | # of pages ▶
To DAWN M WESTBROOK | From DAVID JONES
Co./Dept | Co. LCWA
Phone # 703-583-3801 | Phone #
Fax # | Fax #

BDL = Below Detection Limits

Greg L. Hudson
Laboratory Director

R6467386-1

ENVIROCOMPLIANCE LABORATORIES, INC.

10357 Old Keeton Road
Ashland, Virginia 23005
Phone 804 550 3871
Fax 804 550 3826

Certificate of Analysis

County of Louisa
Attn: David Jones
PO Box 160
Louisa, VA 23093

Project Name: Zion Crossroad WWTP
Date Received: February 08, 2007
Date Sampled: February 01, 2007
Time Sampled: 09:00 AM
Date Reissued: February 19, 2007

Lab # 1/Sample ID : Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
TKN	3.0	mg/l	.1	02-14/0930	02-15/1330	351.4	MDM
Phosphorus	1.16	mg/l	.01	02-13/0900	02-13/1530	365.2	MDM
Copper	0.008	mg/l	.002	02-09/1215	02-14/1128	220.2	GBH
Zinc	0.51	mg/l	.02	02-09/1215	02-14/1558	289.1	GBH
Dissolved Copper	0.005	mg/l	.002	02-09/1215	02-14/1128	220.2	GBH
Dissolved Zinc	0.72	mg/l	.02	02-09/1215	02-14/1558	289.1	GBH
Oil and Grease	BDL	mg/l	5	02-14/0930	02-15/0825	413.1	SET
Ammonia	1.6	mg/l	.1	02-14/0900	02-14/0900	350.3	MDM

Lab # 2/Sample ID : Influent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
TKN	47.1	mg/l	.1	02-14/0930	02-15/1330	351.4	MDM
Phosphorus	6.25	mg/l	.01	02-13/0900	02-13/1530	365.2	MDM

Lab # 3/Sample ID : Effluent

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
TKN	3.7	mg/l	.1	02-14/0930	02-15/1330	351.4	MDM
Phosphorus	2.28	mg/l	.01	02-13/0900	02-13/1530	365.2	MDM
Copper	0.030	mg/l	.002	02-09/1215	02-14/1128	220.2	GBH
Zinc	0.27	mg/l	.02	02-09/1215	02-14/1558	289.1	GBH
Oil and Grease	BDL	mg/l	5	02-14/0930	02-15/0825	413.1	SET
Nitrite (as N)	0.66	mg/l	.01	02-09/1600	02-09/1600	354.1	MDM
Nitrate (as N)	3.7	mg/l	.1	02-08/1722	02-08/1722	300.0	GBH
Ammonia	1.0	mg/l	.1	02-14/0900	02-14/0900	350.3	MDM

BDL = Below Detection Limit

Carrie E. Bisk
QA Coordinator

R7271197-1R.2

SENT BY: ENVIROCOMPLIANCE; 8045503826; [illegible] PM; PAGE 1/1
TO: LCWA AT: 15409670650

ENVIROCOMPLIANCE LABORATORIES, INC
10387 Old Kenton Road
Ashland, Virginia 23005
Phone 804 550 3871
Fax 804 550 1020

Certificate of Analysis

County of Louisa
Attn: David Jones
PO Box 160
Louisa, VA 23093

Project Name : Zion Crossroad WWTP
Date Received: November 09, 2006
Date Sampled : November 09, 2006
Time Sampled : 06:00-14:00
Date Tested : November 30, 2006

Sample ID : Effluent

Parameter	Result	Units	PL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
TKN	7.2	mg/l	1	11-15/1000	11-16/1300	351.4	MDM
Phosphorus	0.08	mg/l	.01	11-16/0915	11-16/1600	365.2	MDM
Ammonia	4.6	mg/l	.1	11-15/1400	11-15/1400	350.3	MDM
Dissolved Copper	0.002	mg/l	.002	11-13/1145	11-15/1332	220.2	GBH
Dissolved Zinc	0.15	mg/l	.02	11-13/1145	11-15/1700	289.1	GBH

BDL = Below Detection Limit

Carrin E. Sisk
QA Coordinator

R6B70050-1

5/29/2007 12:11:30 PM

Facility = Zion Crossroads WWTP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 4.3
WLAc = 1.6
Q.L. = .2
# samples/mo. = 4
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 3.2282721494661
Average Weekly limit = 3.2282721494661
Average Monthly LImit = 2.20725270575197

The data are:

9

4/29/2008 9:15:09 AM

Facility = Zion Crossroads WWTP
Chemical = Cadmium
Chronic averaging period = 4
WLAa = 2
WLAc = 0.47
Q.L. = .1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = .14
Variance = .007056
C.V. = 0.6
97th percentile daily values = .340678
97th percentile 4 day average = .232930
97th percentile 30 day average= .168847
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

0.14

4/29/2008 9:25:02 AM

Facility = Zion Crossroads WWTP
Chemical = Chromium III
Chronic averaging period = 4
WLAa = 240
WLAc = 31
Q.L. = 1.0
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 2.57
Variance = 2.37776
C.V. = 0.6
97th percentile daily values = 6.25388
97th percentile 4 day average = 4.27594
97th percentile 30 day average= 3.09955
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2.57

4/29/2008 9:04:44 AM

Facility = Zion Crossroads WWTP
Chemical = Copper
Chronic averaging period = 4
WLAa = 6.2
WLAc = 3.9
Q.L. = 2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 4
Expected Value = 3.39026
Variance = 4.13780
C.V. = 0.6
97th percentile daily values = 8.24993
97th percentile 4 day average = 5.64069
97th percentile 30 day average= 4.08884
< Q.L. = 1
Model used = BPJ Assumptions, Type 1 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.7040416578076
Average Weekly limit = 5.7040416578076
Average Monthly LImit = 5.7040416578076

The data are:

2
5
0
2.38

4/29/2008 9:41:10 AM

Facility = Zion Crossroads WWTP
Chemical = Lead
Chronic averaging period = 4
WLAa = 67
WLAc = 7.6
Q.L. = .1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = .73
Variance = .191844
C.V. = 0.6
97th percentile daily values = 1.77639
97th percentile 4 day average = 1.21456
97th percentile 30 day average= .880418
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

0.73

4/29/2008 9:42:18 AM

Facility = Zion Crossroads WWTP
Chemical = Nickel
Chronic averaging period = 4
WLAa = 78
WLAc = 8.7
Q.L. = 1
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 2.94
Variance = 3.11169
C.V. = 0.6
97th percentile daily values = 7.15424
97th percentile 4 day average = 4.89154
97th percentile 30 day average= 3.54579
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2.94

4/29/2008 9:06:02 AM

Facility = Zion Crossroads WWTP
Chemical = Zinc
Chronic averaging period = 4
WLAa = 50
WLAc = 51
Q.L. = 20
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 4
Expected Value = 451.5
Variance = 73386.8
C.V. = 0.6
97th percentile daily values = 1098.68
97th percentile 4 day average = 751.201
97th percentile 30 day average= 544.533
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 50
Average Weekly limit = 50.0000000000001
Average Monthly LImit = 50.0000000000001

The data are:

486
450
150
720

PUBLIC NOTICE OF INTENT TO REISSUE A VPDES PERMIT

Citizens may comment on the proposed permit reissuance that allows the release of treated wastewater into a water body in Louisa County, Virginia

PUBLIC COMMENT PERIOD: June 27, 2008 to 5:00 p.m. on July 28, 2008

PERMIT NAME: Zion Crossroads Wastewater Treatment Plant (WWTP)
Virginia Pollutant Discharge Elimination System Permit (VPDES) – Wastewater (VA0090743)

Owners or operators of municipal facilities that discharge or propose to discharge wastewater into the streams, rivers or bays of Virginia from a point source must apply for this permit. In general, point sources are fixed sources of pollution such as pipes, ditches or channels. The applicant must submit the application to the Department of Environmental Quality, under the authority of the State Water Control Board.

PURPOSE OF NOTICE: To invite the public to comment on the draft permit.

NAME, ADDRESS AND PERMIT NUMBER OF APPLICANT: Louisa County Water Authority
P.O. Box 9
Louisa, VA 23093
VA0090743

NAME AND ADDRESS OF FACILITY: Zion Crossroads WWTP
9746 James Madison Highway
Gordonsville, VA 22942

PROJECT DESCRIPTION: The Louisa County Water Authority has applied for reissuance of a permit for the Zion Crossroads WWTP in Gordonsville, Virginia. The applicant proposes to release treated sewage at a rate of 0.7 Million Gallons per Day into an impoundment of Camp Creek in Louisa County that is in the York River Watershed. A watershed is the land area drained by a river and its incoming streams. The sludge will be transferred to another sewage treatment plant for further treatment. The permit will limit or monitor the following pollutants to amounts that protect water quality: Flow, pH, cBOD, Total Suspended Solids, Total Phosphorus, *E. Coli* bacteria, Dissolved Oxygen, Total Nitrogen, Total Kjeldahl Nitrogen, Nitrite and Nitrate as Nitrogen Total Recoverable Copper, and Total Recoverable Zinc. The facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia. As a condition of this permit, the permittee will be required to reuse or offset in advance, any loads of Total Nitrogen or Total Phosphorus that are expected to be discharged in a given calendar year, in excess of those levels previously allowed by the facility's VPDES permit. The permittee may opt to install nutrient removal treatment that will maintain the existing load of nutrients discharged.

HOW A DECISION IS MADE: After public comments have been considered and addressed by the permit or other means, DEQ will make the final decision unless there is a public hearing. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the proposed permit. If there is a public hearing, the State Water Control Board will make the final decision.

HOW TO COMMENT: DEQ accepts comments by e-mail, fax or postal mail. All comments must be in writing and be received by DEQ during the 30 day comment period. The public also may request a public hearing.

WRITTEN COMMENTS MUST INCLUDE:
1. The names, mailing addresses and telephone numbers of the person commenting and of all people represented by the citizen.
2. If a public hearing is requested, the reason for holding a hearing, including associated concerns.
3. A brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen.

TO REVIEW THE DRAFT PERMIT AND APPLICATION: The public may review the draft permit and application at the DEQ office named below or may request a copy by calling or e-mailing the contact individual below.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:
Name: Anna T. Westernik
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3837 E-mail: atwesternik@deq.virginia.gov Fax: (703) 583-3841

Attachment 11

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Zion Crossroads WWTP
NPDES Permit Number:	VA0090743
Permit Writer Name:	Anna Westernik
Date:	June 12, 2007

Major [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	x		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	x		
3. Copy of Public Notice?	x		
4. Complete Fact Sheet?	x		
5. A Priority Pollutant Screening to determine parameters of concern?	x		
6. A Reasonable Potential analysis showing calculated WQBELs?	x		
7. Dissolved Oxygen calculations?		x	
8. Whole Effluent Toxicity Test summary and analysis?			x
9. Permit Rating Sheet for new or modified industrial facilities?			x

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		x	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	x		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	x		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		x	
5. Has there been any change in streamflow characteristics since the last permit was developed?		x	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		x	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	x		
8. Does the facility discharge to a 303(d) listed water?		x	
a. Has a TMDL been developed and approved by EPA for the impaired water?			x
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			x
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	x		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		x	
10. Does the permit authorize discharges of storm water?		x	

Attachment 12

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		x	
12. Are there any production-based, technology-based effluent limits in the permit?		x	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		x	
14. Are any WQBELs based on an interpretation of narrative criteria?		x	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		x	
16. Does the permit contain a compliance schedule for any limit or condition?	x		
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		x	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	x		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		x	
20. Have previous permit, application, and fact sheet been examined?	x		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs
(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	x		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	x		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	x		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	x		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	x		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	x		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	x		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	x		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		x	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	x		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?		x	
3. Does the fact sheet provide effluent characteristics for each outfall?	x		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	x		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	x		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	x		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	x		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?		x	
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	x		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	x		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	x		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	x		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	x		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	x		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	x		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		x	
4. Does the permit require testing for Whole Effluent Toxicity?		x	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	x		
2. Does the permit include appropriate storm water program requirements?			x

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?	x		
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			x
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		x	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		x	
a. Does the permit require implementation of the "Nine Minimum Controls"?			x
b. Does the permit require development and implementation of a "Long Term Control Plan"?			x
c. Does the permit require monitoring and reporting for CSO events?			x
7. Does the permit include appropriate Pretreatment Program requirements?		x	

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	x		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	x		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	**Yes**	**No**	**N/A**
1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?			
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?			

II.B. Effluent Limits – General Elements	**Yes**	**No**	**N/A**
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?			
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	**Yes**	**No**	**N/A**
1. Is the facility subject to a national effluent limitations guideline (ELG)?			
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?			
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?			
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?			
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?			
5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?			
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?			
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?			
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?			
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?			

II.D. Water Quality-Based Effluent Limits	**Yes**	**No**	**N/A**
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?			
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?			
3. Does the fact sheet provide effluent characteristics for each outfall?			
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?			
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?			
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?			
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?			
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?			
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?			
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?			
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?			
8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?			

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?			
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?			
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?			

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?			
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?			
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?			

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
	Monitoring and records	Transfers
Duty to mitigate	Signatory requirement	Monitoring reports
Proper O & M	Bypass	Compliance schedules
Permit actions	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?			

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Anna T. Westernik
Title	Environmental Specialist II
Signature	
Date	June 12, 2007